

MARINE REVIEW.

Vol. XIV.

CLEVELAND, O., JULY 30, 1896.

No. 5.

Lake Freight Matters.

Within the past few days the movement to lay up vessels has assumed such proportions that a fleet in idleness greater than anything ever seen on the lakes will probably be witnessed at Lake Erie ports within the coming week or ten days. Delays in port have already cut down the freight movement to a very large extent, as much so as if a big portion of the tonnage was actually out of commission, but the situation seems to grow worse every day, and the full force of depression in all lines of trade is now reflected in the lake business. Furnaces are out of blast everywhere and ore dealers are selling no ore, although the aggregate of sales, with about half the season gone, is hardly more than half the estimates made during the winter on the year's supply. Thus far the ore companies are furnishing cargoes according to agreement with all vessels under contract, and although there has been talk of asking owners to carry some contract ore over to next season, the shippers say they will live up to contracts as far as it is possible to do so. They add that they see no immediate cause for asking vessel owners to make concessions.

Vessel owners complain most of the handling charges on ore under present rates of freight. A charge of 16 cents for unloading ore with the Escanaba freight rate at 40 cents is more than they can stand without complaint. They say that they do not urge a reduction in labor charges on the docks, but they claim that dock companies handling ore have for several years past been receiving a very heavy income from their investments and could well afford to reduce handling charges without disturbing labor. The impression is general among vessel owners that the earnings of dock companies have been very large and that these earnings have been constant year in and year out, as they have been reduced only when labor has been reduced.

The natural gas company of Detroit that has sued the owners of the Milwaukee steamer Helena for \$10,000 damages, on the claim that she pulled up a gas main in the Detroit river while hoisting anchor some time ago, will probably find that they have made a serious mistake. There are several decisions of the United States courts relating to cases of this kind. The courts have declared on several occasions that gas companies, as well as telegraph and telephone companies, must place their pipes, cables, etc., low enough under the beds of navigable streams, so that they will not be interfered with by vessels using ordinary care in the navigation of such waterways. A case of this kind, brought by the Western Union Telegraph Co. in New York, was decided only recently by the United States circuit court of appeals. It would be a very difficult job to prove that the officers of the steamer Helena or any other vessel would wilfully pull up this gas pipe. The policy of the gas company should not be to antagonize the vessel interests. It is true that they have placed a light-ship at Orleans street in the Detroit river to mark the location of the pipe line, and have otherwise endeavored to advertise the existence of it, but it would be ridiculous to assume that they had any special claim to the bed of the river. When representatives of this company asked the Lake Carriers' Association to inform vessel masters generally of the existence of the pipe line their request was readily granted. It was agreed that every effort would be made to avoid injury to their property, but now that they have gone to dragging vessel owners into court and subjecting them to expense, it is not probable that men in charge of the vessels will have quite as much regard for this pipe line as they have had in the past, especially if this legal action goes against the gas company, as it very probably will.

J. W. Wood, naval architect, who was for a long time employed by the Globe Iron Works Co., Cleveland, but who has of late been with the Goodrich Transportation Co. of Chicago, has engaged with the latter company for another year.

One fare to Salt Lake City plus \$2.00 via the Nickel Plate road, Aug. 5th and 6th, account the International Fire Engineers convention.

201-July 31.

Look for a Boom in Water Tube Boilers.

The great progress that has been made with water tube boilers during the past year in the ship building districts of England and Scotland is having its effect in this country, and it is more than probable that manufacturers who have been constantly improving upon the best designs of boilers of this kind intended for marine purposes will soon be heard from in a very effective way on the lakes. Every issue of English trade journals of late brings accounts of the adoption of water tube boilers in vessels of all kinds, and the number of modern freight steamers that are being equipped with the new generators is surprising. Especially has this been the case since the British navy has taken to these boilers in a wholesale manner. With the water tube boiler coming into more general use, difficulties attending the operation of it are being overcome, and the manufacturers on this side who are making boilers of their own as well as those controlling patents on foreign makes, are keeping abreast of the improvements.

On the lakes the great claim will be in reference to weights, on account of shallow channels and the aim in freight ships to reach a maximum of carrying capacity on light draft and a limit of other dimensions in accordance with draft. Whatever may be said to the contrary, it is quite certain that in the lake trade, as elsewhere, this reduction in weight will be found worth striving for. In the engine room, weights of moving parts have already been so much scaled down that there appears to be little hope of any great reduction of weight per horse power. But increased boiler pressure is demanded, and it is this demand that will kill the cylindrical boiler. The old type of boiler, popular as it has been, will die hard, and the influence of manufacturers who have heavy investments in plants suited to the manufacture of it, will assist in upholding it, but the signs of the past few months are more convincing than ever as to the final outcome. It is safe to predict that as against one or two types of water tube boilers now urged for adoption in vessels of large tonnage on the lakes, a half dozen or more will be heard of within a few months, and the manufacturers of them will be pushing their claims with special vigor here, on account of conditions more favorable than are found elsewhere.

An immense freight and passenger steamer, the Union liner Scott, which was built for service between England and South Africa, was lengthened recently in a peculiar manner at the works of Harland & Wolff, Belfast, Ireland. The vessel was placed in dock and regular launching ways placed under her. The shell plating, stringers etc. were drilled in line with the midship water-tight bulkhead, to separate the forward part; and the stanchions carrying the promenade deck were "loosened," so that this structure with the saloon remained, while the hull proper was drawn forward by winches, the promenade deck structure being meanwhile shored up from the altar courses of the dock. The additional part was then built up under the promenade deck. The addition of 54 feet adds another hold, with a number of staterooms. The dimensions of the vessel now are: Length over all, 556 feet; between perpendiculars, 531 feet; beam, 54 feet 8 inches; depth, 33 feet 7 inches; and tonnage 7,815 tons.

Attention is being directed to progress of ship building in Germany through orders for new twin-screw ships recently placed by the North German Lloyd Co. New ships for this company now on the stocks aggregate about 82,000 tons, and what is of most importance is the fact that the work is divided among five different German yards, each of which is capable of building twin-screw steamers to develop 15 to 21 knots.

Among vessels fined for violating rules governing the navigation of St. Mary's river was the steamer W. F. Sauber, owned by Capt. John Mitchell of Cleveland. Capt. Mitchell paid the fine, and in doing so said that, although he handles a few freight boats that are among the flyers, he is opposed to any change in the present Sault river regulations.

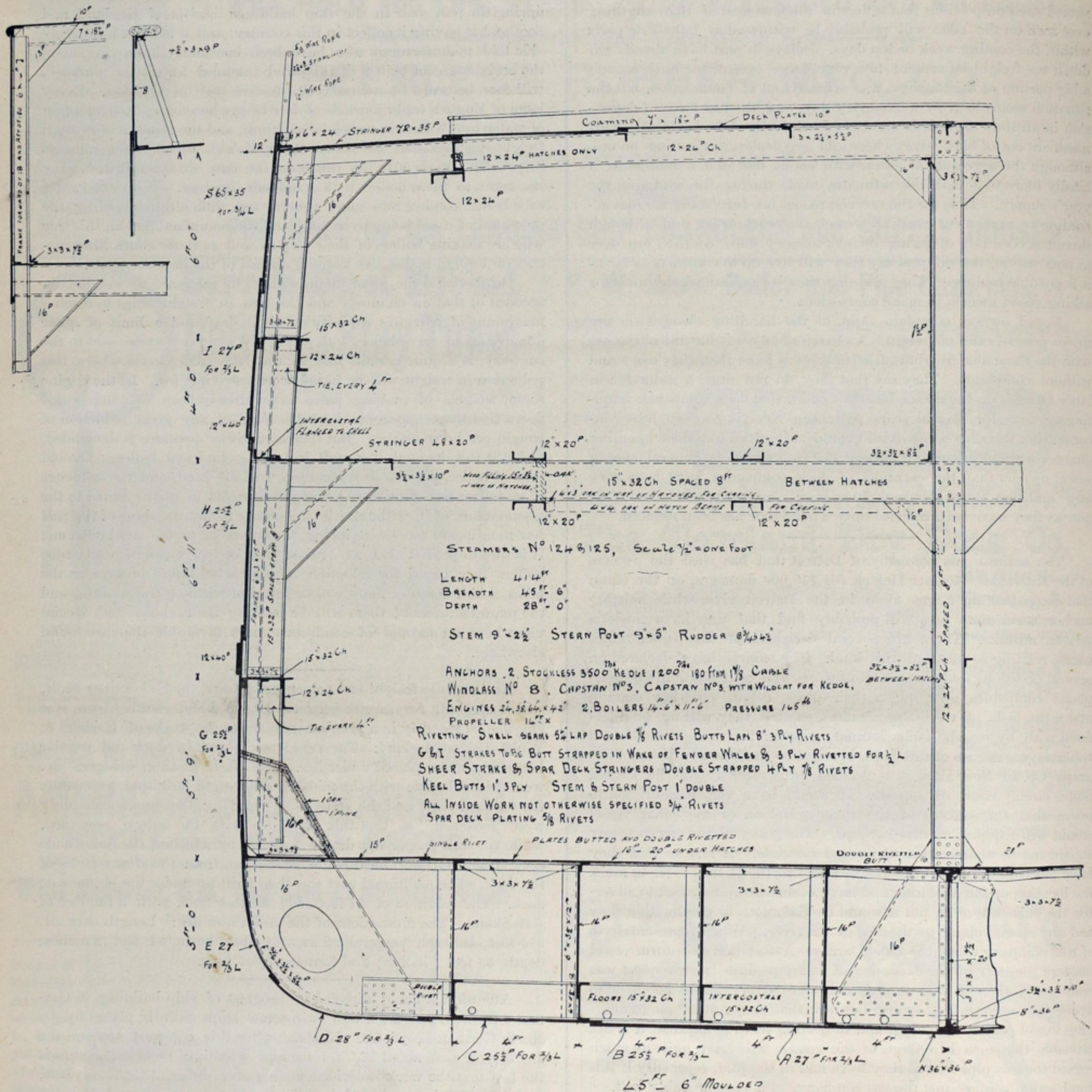
Rockefeller Ships.

DESCRIPTION OF TWO STEAMERS BUILDING AT DETROIT—DESCRIPTIONS AND ILLUSTRATIONS ARE NOW COMPLETE.

Within the past three months the REVIEW has described in different issues, ten of the twelve Rockefeller ships for which contracts were let with lake ship builders last fall. Cross sectional drawings were presented in all cases. A cross sectional drawing of the last two vessels, the duplicate steamers building at Detroit, is presented here-

ing what has been said of other vessels of the fleet. Engines are triple expansion with cylinders 24, 38 and 64 inches diameter by 42 inches stroke. There will be in each steamer only two boilers, 14 feet 6 inches by 11 feet 6 inches, but they will be fitted with the Howden system of hot draft.

A new timber dry dock at the New York navy yard is about ready for acceptance by the government. Dimensions of this dock are: Length on top from head to gate, 670 feet; width, 151 feet on the top



CROSS SECTION OF ROCKEFELLER STEAMERS UNDER CONSTRUCTION, AT DETROIT.

with. The engraving contains almost every detail of these ships. The first of them will probably be launched at Wyandotte, near Detroit, on Saturday of this week. They are each 414 feet between perpendiculars and 434 feet over all, or about two feet longer than any vessel now afloat. In width, however, they are only 45 feet 6 inches, against 48 feet in most other vessels of the 400-foot type. Their depth is 28 feet. A further description of the vessels as to the crews' quarters, equipment and general features of construction would be repeat-

and 60 feet 4 inches at the bottom; gate, 108 feet 8 inches on top and 71 feet 6 inches on the bottom. There will be 29 feet of water over the sills, while the gate will be 35 feet 6 inches high. A sea wall 200 feet on either side of the gateway is to be constructed of stone. In the pumping station there are three pumps with capacity of 200,000 gallons a minute.

The Nickel Plate road sells a ticket to Boston for \$1 less than other lines. Through sleepers.

155-July 31.

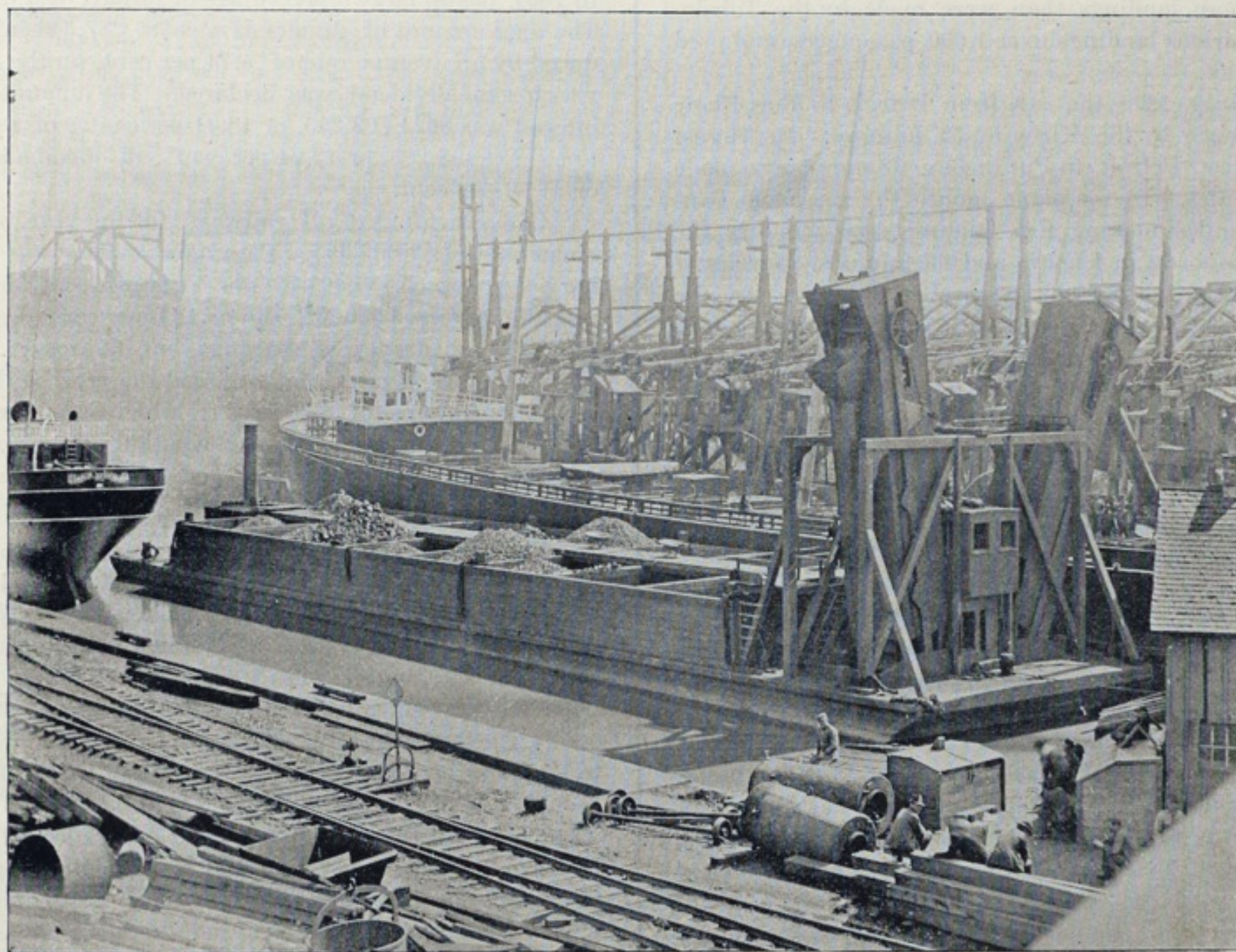
A Great Device for Fueling Steamers.

The demand on the lakes for rapid dispatch in port with vessels of all kinds has led to numerous devices for fueling steamers. The port on Lake Erie that does not now maintain a scow capable of propelling itself, and equipped with derricks and buckets for putting fuel aboard steamers while they are loading or unloading cargo, is very much behind the times. At Ashtabula M. A. Hanna & Co. have just introduced a vessel for this purpose that is novel in construction, and the capacity of which would seem to be far ahead of the lighters that are equipped with loaded buckets and derricks. The machine, as illustrated herewith, is putting coal into the bunkers of the steamer Cambria. A capacity of 150 tons an hour is claimed for it, and captains who have recently taken on fuel at the Pennsylvania side in Ashtabula say that it is altogether the most successful device for the purpose they have ever seen.

The hull is 180 feet over all and 36 feet beam, and it is propelled around the harbor by means of two ordinary screws. There are sixteen compartments or pockets in the hull, capable of holding about 40 tons each, so that the capacity of the scow is about 640 tons. These

Our Navy—Ships and Officers.

The Navy Register, corrected to July 1, furnishes some interesting facts about ships and officers of the United States navy. There are in the navy at present 130 ships all told. This number does not include ships under construction, but it does include unserviceable craft, as well as sailing and receiving ships. If we eliminate these latter, taking into account only modern ships, and then add vessels under construction, we find that within three years, when vessels for which appropriations have been made are completed, our navy will be composed of 119 fighting ships as follows: Battleships, first-class, 9; battleships, second class, 2; coast defense ships, 20; cruisers, armored, 2; cruisers, 31; gunboats, 18; torpedo boats, 23; miscellaneous, 2; tugs, 12; total, 119. There are six rear admirals in our navy, ten commodores, forty-five captains, eighty-five commanders, seventy-four lieutenant commanders, 250 lieutenants, seventy-five lieutenants (junior grade) and 178 ensigns, making a total of 723 commissioned officers of the line. In the medical corps there are 159 doctors. The pay corps has 96 officers. In the engineer corps there are 182 officers and this number is thirteen short of the total allowed by law. There



NEW FUEL SCOW OPERATED BY M. A. HANNA & CO. AT ASHTABULA.

pockets can all be loaded by night, or after working hours in the evening, from the shipping or cargo dock, and the scow is ready to begin work the next morning with enough fuel, probably, for all vessels in port.

Under the pockets of the scow and on a line with the keel is a scraper or conveyor which receives the coal from the pockets as it is dropped through doors in the bottom of the pockets. These doors—three to each pocket—can be opened or closed at will, fully regulating the supply of coal. By means of this endless scraper the coal is carried under the pockets to the forward part of the vessel, where there is a hopper and two elevators with ordinary elevator machinery. As the elevator on either side of the scow is fed, the coal is carried up to the top of the circular chutes and then dropped into the bunkers of the vessel that is being fueled. One elevator would serve the purpose of the device under ordinary circumstances, but the object in having two is to save time in handling the scow in crowded places. The advantage of two elevators is shown in the engraving, which contains views of two steamers. After finishing work with the port elevator on the steamer on which she is engaged, the scow can readily be backed down to the second steamer, where the starboard elevator will come into play. This device has been in operation at Ashtabula for several days past, and is pronounced a great success.

are twenty-three chaplains, twelve professors of mathematics, thirty-six naval constructors, twelve civil engineers and seventy-five marine officers.

Some time ago the steamer John Oades struck a shoal in Lake Erie near Kelley's island, and was badly damaged. Other vessels struck at the same place. Col. Jared A. Smith, United States engineer at Cleveland, has had a searching party out and the spot has been found and buoyed. From Marblehead light it is S. E. by S. $\frac{1}{4}$ S.; from the east end of Ballast island N. $\frac{1}{4}$ W., and from Carpenter point, Kelley's island, E. $\frac{3}{4}$ N., a distance of $7\frac{1}{2}$ miles. At present the shoal is marked by a small buoy with a red flag, but as soon as possible it will be marked by a large can buoy with stripes painted horizontally. The shoal is small, and on each side of it the water reaches a depth of from 20 to 21 feet, but the water over the rocks is but 13 feet deep.

The Blue Book of American Shipping answers questions that arise daily in every vessel agent or owner's office. If the book is not satisfactory it costs nothing, as the \$5.00 will be returned. Order at once, No. 409 Perry-Payne building, Cleveland.

A ticket to Chicago via the Nickel Plate road is sold for \$1.50 less than via other lines. A perfect passenger service. 153-July 31.

Speed Claimed for the Frank E. Kirby.

Editor MARINE REVIEW:—In a recent issue of the REVIEW we notice an article under the heading, "The Whirligig of Time," in which the writer claims that the steamer City of Toledo has beaten the Frank E. Kirby's record on the route between Detroit and Port Huron. We claim that the Toledo has not equaled the Kirby's record, when the number of passengers handled and number of landings made are taken into account. On April 16, 1893, the Kirby, without making any special effort and using only natural draft all the time, made the run from Detroit to Port Huron, via Algonac, making thirteen landings and handling 1,000 passengers at the various landings, in 4 hours and 50 minutes. The Toledo's time from Detroit to Port Huron, as given by Capt. King of the Toledo, was 5 hours and 55 minutes, making twenty-one landings. The Detroit Journal, referring to the same run, makes the time 5 hours and 25 minutes with twenty landings. The manager of the Toledo claims that in a race with the Unique the Toledo came down from Port Huron to Detroit in 3 hours and 55 minutes, making eight landings. The landings were made quickly, as very few passengers were taken on board.

The Kirby on her down trip made the run in 4 hours and 16 minutes, made five more landings than were made by the Toledo, took on board at the various landings over 1,000 passengers, and used natural draft all the way.

In the month of July, 1890, the run from Detroit to Bois Blanc light, 19 miles, was made by the Kirby in 54 minutes. In August the run from Third street, Detroit, to Put-in Bay, 58 miles, was made in 2 hours and 54 minutes. In the same month the run from Sandusky to Detroit, 80 miles, making five landings, and winding the boat at Put-in Bay, was made in 4 hours and 55 minutes, 23 miles of the distance being against the current in the Detroit river. In the month of November, 1892, she left Detroit at 9.30 a. m., went to Sandusky, took on board 160 tons of sugar, returned by way of Put-in Bay, and arrived in Detroit at 9.30 p. m., all in 12 hours, the number of miles being 160. In June, 1895, the Kirby made the run from Bois Blanc island light to Third street, Detroit, against the current in the Detroit river, in 1 hour and 7½ minutes; distance, 19 miles.

ASHLEY & DUSTIN.

Detroit, Mich., July 29, 1896.

Railways of the United States.

Some very interesting facts about railways of the United States are contained in an abstract of the annual statistical report of the Interstate Commerce Commission for the year ending June 30, 1895. It is unfortunate that the issue of this abstract is about a year behind time. On the date of this report 169 roads, operating 37,856 miles of line, were in the hands of receivers, but this showed a net decrease of twenty-three roads during the year. The total railway mileage in the United States on June 30, 1895, was 180,657.47 miles, or an increase of 1,948.92 miles, or 1.09 per cent. The aggregate length of all tracks was 236,894.26 miles. Included in this total track mileage were 10,639.96 miles of second track, 975.25 miles of third track, 733.12 miles of fourth track, and 43,888.46 miles of yard track and sidings.

The number of corporations was 1,965, of which 1,013 maintained operating accounts and 800 financial accounts. It appears that 133 roads, or 12.05 per cent. of operating companies, operate 145,155.13 miles, or 80.24 per cent. of total mileage in operation. There were on June 30, 1895, 35,699 locomotives. Of this number 9,999 were passenger locomotives, 20,012 were freight locomotives, 5,100 were switching locomotives, and 588 were unclassified. The number of cars of all classes reported, being those owned by railways, was 1,270,561, which indicates a decrease of 7,517, as compared with the previous year. Of the total cars reported, 33,112 were in passenger service, 1,196,119 were in freight service, and the remainder, 41,330, were cars used by the reporting companies in their own service. Cars in freight service decreased 9,050. The explanation of this decrease is not wholly to be found in an effort on the part of the railway companies to economize in equipment, but rather in the increased use made of private cars.

The number of men employed by railways shows an increase of 5,426 as compared with last year, the number of employees being 785,034 on June 30, 1895. The number of passengers carried was 507,421,362, or a decrease of 33,266,837 as compared with the year ending June 30, 1894. The number of passengers reported as carried

one mile was 12,188,446,271, a decrease of 2,100,999,622 being shown when compared with figures for the previous year. The number of tons of freight carried as reported by railways was 696,761,171, which gives an increase of 58,574,618 for the year. The number of tons carried one mile was returned as 85,227,515,891, indicating an increase of 4,892,411,189.

The amount of railway capital on June 30, 1895, is shown to be \$10,985,203,125, or \$63,330 per mile of line. The increase during the year was \$188,729,312. Railway capital was distributed as follows: The amount of capital stock was \$4,961,258,656, of which \$4,201,697,351 was common stock, and \$759,561,305 preferred stock; the funded debt was \$5,407,114,313, classified as bonds, \$4,659,873,548, miscellaneous obligations, \$445,221,472, income bonds, \$246,103,966, and equipment trust obligations, \$55,915,327; the current liabilities amounted to \$616,830,156. Stock to the amount of \$3,475,640,203, or 70.05 per cent. of the total outstanding, paid no dividend, and \$904,436,200, or 16.90 per cent. of the funded debt, exclusive of equipment trust obligations, paid no interest during the year covered by the report. In no other year since the organization of the division of statistics has so large a percentage of stock passed its dividends, or, except in 1894, has so large a percentage of funded debt defaulted its interest. The total amount of dividends was \$85,287,543, which would be produced by an average rate of 5.74 per cent. on the amount of stock on which some dividend was declared. The amount of bonds paying no interest was \$624,702,293, or 13.41 per cent.; of miscellaneous obligations, \$54,498,288, or 12.24 per cent.; of income bonds, \$225,235,619, or 91.52 per cent.

Gross earnings of all railways for the year were \$1,075,371,462, an increase of \$2,009,665. Passenger revenue was \$252,246,180, showing a decrease of \$33,103,378, or 11.60 per cent. for the year. Freight revenue increased \$30,502,549, or 4.36 per cent., being \$729,993,462 for 1895. These are gross earnings, but the report concludes that the railways of the United States closed the year with a deficit from the year's operations of \$29,845,241, which was met by a decrease in accumulated surplus, or by the creation of current liabilities. The corresponding deficit for the year ending June 30, 1894, was \$45,851,294.

The action of the German government in adopting the American idea of the tripple screw for men-of-war is considered as a high compliment to the American navy. There was considerable opposition to the use of this system for United States vessels when originally suggested by Engineer-in-Chief G. W. Melville. The success of the triple screw attained by the Columbia and her sister ship the Minneapolis, the fastest cruiser in the world, and the visit of the Columbia to Kiel, on the occasion of the opening of the North German canal, brought the matter to the serious attention of the German authorities, with the result that the government has ordered two battleships and five cruisers of its navy equipped with triple propellers. According to information just received at the navy department, the larger ships have a horse power of 13,000, the first-class cruisers 13,500, and the second-class cruisers 9,000. The battleships have a displacement of 11,000, the first-class cruisers a displacement of 10,000, and the second-class cruisers a displacement of 6,000. This government may properly claim the credit of first applying practically the triple-screw idea to warships, and its adoption by the German government is accepted as an indorsement of the skill and ingenuity of American naval officers.—Army and Navy Journal.

A steam yacht 60 feet over all, the Vailima, has just been launched at the Spalding Boat Works, Ogdensburg. Engines of fore-and-aft compound kind were furnished by T. S. Marvel & Co. of Newburg, N. Y. The boiler is of the Almey water tube type.

Capt. John P. Reddy, age sixty-four, died at his home in Chicago a few days ago. He was born in Newfoundland, but he had lived in Milwaukee for nearly half a century, and during nearly all of that time he had sailed the lakes as seaman or officer.

Capt. Alex. McDougall of the American Steel Barge Co. has written a letter commending the Roberts boiler in his little steamer Islay. The boat has been in service for two years or more in the harbors of Duluth and Superior.

Through tickets are sold by the Nickel Plate road at from \$1.00 to \$3.00 lower than other lines. Solid through service between Chicago, Buffalo, New York City and Boston. 202-July 31.

Steel Ships Built on the Lake.

In a recent issue the REVIEW printed a short extract from reports of the United States commissioner of navigation, showing that during the year ended with the 30th of last month the tonnage of new steel and iron vessels built on the lakes was more than double that of vessels of this class built in all other parts of the country. The complete statement is now at hand. It shows that during the year thirty steel and iron vessels of 72,966.88 gross tons were built on the lakes, while in all other parts of the country the number of vessels of this kind built was thirty-eight, but their aggregate tonnage was only 36,394.77 gross tons. Thus the average tonnage of steel vessels built on the lakes was 2,432.23 gross tons, against an average of 957.75 gross tons on the coast. Following is the statement:

VESSELS BUILT IN THE UNITED STATES AND OFFICIALLY NUMBERED BY THE BUREAU OF NAVIGATION DURING THE FISCAL YEAR ENDED JUNE 30, 1896.

	WOOD.				IRON.		STEEL.			
	SAIL.		STEAM.		STEAM.		SAIL.		STEAM.	
	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.
Atlantic and Gulf coasts...	295	39,237.89	101	13,523.68	4	562.67	1	59.84	31	31,220.92
Pacific coast.....	60	6,328.10	26	3,696.67	1	1,938.12	5	15,008.66	2	4,551.34
Great Lakes.....	25	8,374.31	49	10,739.59					24	56,020.10
West'n Rivers	1	20.97	84	12,793.99						
Total	381	53,961.27	260	40,753.93	5	2,500.79	6	15,068.50	57	91,792.36

SUMMARY

	Year ending June 30, 1896.		Year ending June 30, 1895.	
	Number.	Gross Tons.	Number.	Gross Tons.
Total Sail.....	387	69,029.77	399	56,990.87
Total Steam.....	322	135,047.08	283	75,727.68
Grand Total	709	204,076.85	682	132,718.55

Cutting Down Fuel Bills.

Mr. C. B. Calder, superintendent of the Dry Dock Engine Works, Detroit, was in Cleveland Wednesday, and left with another order to apply the Howden hot draft to a wooden steamer. The order is from Capt. J. W. Moore for his steamer Colonial. Capt. Moore is greatly pleased with results obtained from application of the Howden draft to the steamer Marquette, in which the dry dock company also made a change of machinery. It is quite evident that officials of the Dry Dock Co. are congratulating themselves upon having a good thing in the exclusive right to make use of this system of draft on the lakes, especially as they are now satisfied that owners of wooden vessels of moderate capacity are realizing its advantages and they expect even a greater trade in equipping ships already in commission than can be obtained from the limited number of new vessels that will be built for some time to come. "It is only necessary to get the draft into one boat of a fleet," said Mr. Calder, "to satisfy owners, engineers and everybody else of its simplicity and advantages. Capt. Moore had one vessel fitted with it, and there was little difficulty in getting a second order from him. Air is cheap, and if it can be handled to reduce full bills why not use it? Fuel expenses are about the only expenses that can be reduced. Operating costs otherwise are reaching the limit of reduction. Labor and provisions are about down to the lowest possible mark, and anyhow the reductions made in these items are by no means as important as can be made in fuel. Advantages of this Howden draft are well illustrated by referring to the experience of pig iron manufacturers with hot blasts. The principle is practically the same. What furnace man would think of running to-day without a hot blast? Competition in other lines of business has brought about devices tending to economy in fuel. This same competition will require vessel owners to look after the leaks in their business. It is no longer a question of how many trips a ship can make at any cost of operation, but rather how cheaply can she carry freight?"

The number of ships on the lakes to which the Howden hot draft has been or is now being applied is thirty-two, and their aggregate horse power about 41,000. The list includes the Virginia, Pioneer, Chicora, Harvey H. Brown, W. P. Ketcham, Madagascar, Nicaragua, Argo, Schoolcraft, Rappahannock, Sacramento, Penobscot, Mowhawk,

Mohegan, Progress, S. R. Kirby, R. P. Ranney, A. McVittie, Marquette, Iron Age, Pleasure, Arrow, City of Buffalo, City of Alpena, City of Mackinaw, Senator, Aragon, two steamers now nearing completion at ship yard of Capt. James Davidson, Robert Fulton, Sir Wm. Fairbairn and Colonial.

After making one trip with altered engines and with a new boiler having Howden draft, the engineer of the Marquette, which is the steamer of Capt. Moore's fleet referred to above, wrote as follows: "We burned about ninety-five tons of nut coal—price \$1.90 a ton—from Cleveland to Ashland by way of Hancock and thence to Chicago, which was, of course, about equal to a round trip from Cleveland to the head of Lake Superior and return. We carried 135 pounds of steam going up, and made 9½ miles an hour with eighty turns, loaded. Coming down with a cargo of ore we made seventy-seven turns on 125 pounds of steam and averaged 9 miles an hour. On the last trip with our old boiler and engine we burned 222 pounds of coal per mile; on this trip we burned 122 pounds per mile. In reality the figures representative of the new boiler and engine should be a little lower than I have given them, as I did not deduct the coal used in port, and it may be noted also that on this trip we had to get up steam on a cold boiler twice. The boiler makes plenty of steam, and is working very well."

Ship Yard Matters.

Following are some notes from a Detroit correspondent: "Mr. McVittie and other officials of the Detroit Dry Dock Co. are greatly pleased with the new freight steamer Senator. They were informed, after her arrival at South Chicago, that she made the run, light, from Mackinaw to South Chicago, 342 miles, in 26½ hours, or at an average speed of 13 miles an hour. The Senator is not a high-powered boat, as compared with other ships of the 400 foot type, but everybody interested in her is declaring that she will be very economical. Her engines are about the size of those in the E. C. Pope. Cylinders are 22, 35 and 58 inches diameter by 44 inches stroke. Notwithstanding numerous delays on account of holidays and bad weather, it is still the intention of the management at Wyandotte to launch the first of the Rockefeller steamers on Saturday of this week. Her engines are ready at the Orleans street yard, and a rapid finish of the ship may be expected after she is launched. The passenger steamer City of Cleveland has had some repairs to machinery at the Dry Dock Engine Works recently and will have a new cylinder fitted next fall. Other small jobs by the of the dry dock company include a new wheel for the steamer R. P. Ranney and new keelsons for the steam barge Peshtigo. The Detroit Sheet Metal and Brass Works have been shipping metal life boats, and a large quantity of cabin hardware, etc., to Toronto for the passenger steamer building there to take the place of the boat burned some time ago at Niagara."

A Milwaukee dispatch says that Mr. Gregory Hurson and others interested in the new passenger steamship line, organized about a year ago for general service on Lake Michigan, are planning for the construction of two steel steamers with state room accommodations for about 500 passengers each. They will, undoubtedly, find ship builders ready to give them low prices on steamers of this kind, if they can provide the necessary funds in these times of close money conditions. The scheme is said to contemplate the use of the Christopher Columbus for day service between Chicago and Milwaukee, and it is said that the order for the new boats, if plans are completed as now outlined, will go to the barge company at West Superior.

James Davidson launched on Saturday last one of the two big wooden steamers which he is building at West Bay City. She was named Appomattox. Her dimensions are 332 feet by 42 feet by 23 feet 4 inches. The second of these steamers will be launched shortly.

At the Globe yard, Cleveland, on Saturday the second Rockefeller steamer was launched, and named Sir William Siemens. This steamer is a duplicate of the Sir Henry Bessemer, which is fully described and illustrated in the REVIEW of April 30.

Official numbers and tonnage: Steam—Senator, Detroit, 4,048.75 tons gross, 3,178.66 net, No. 116,725; John Ericsson, Superior, 3,200.79 tons gross, 2,378.27 net, No. 77,226. Sail—Manitou, Cleveland, 31.07 tons gross, 29.48 net, No. 92,728.

The rate to Boston via the Nickel Plate road is lower than via other lines. Through sleepers and diners at your service, too.



DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 409 Perry-Payne building, Cleveland, O by John M. Mulrooney and F. M. Barton.

SUBSCRIPTION—\$2.00 per year in advance. Single copies 10 cents each. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

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The books of the United States treasury department on June 30, 1895, contained the names of 3,342 vessels, of 1,241,459.14 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1895, was 360 and their aggregate gross tonnage 643,260.40; the number of vessels of this class owned in all other parts of the country on the same date was 309 and their tonnage 652,598.72, so that half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1895, was as follows:

Class.	Number.	Gross Tonnage.
Steam vessels.....	1,755	857,735.13
Sailing vessels.....	1,100	300,642.10
Unrigged.....	487	83,081.91
Total.....	3,342	1,241,459.14

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30,	Number.	Gross Tonnage.
1891.....	204	111,856.45
1892.....	169	45,968.98
1893.....	175	99,271.24
1894.....	106	41,984.61
1895.....	93	36,352.70
Total.....	747	335,433.98

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

(From Official Reports of Canal Officers.)

	St. Mary's Falls Canal.			Suez Canal.		
	1895.*	1894.	1893.	1895.	1894.	1893.
No. vessel pass'ges	17,956	14,491	12,008	3,434	3,352	3,341
T'n'ge, net registd	16,806,781	13,110,366	9,849,754	8,448,383	8,039,175	7,659,068
Days of Navigat'n	231	234	219	365	365	365

* 1895 figures include traffic of Canadian canal at Sault Ste. Marie, which was about 1/2 per cent. of the whole, but largely in American vessels.

FINES are being levied by the government upon some of the fast freight steamers for violation of regulations governing the navigation of St. Mary's river, and a cry has been raised in a few cases against the rules. But there will be no change in the regulations for the present season. The principle involved in this question is of the highest importance, as shown at the recent meeting of executive officers of the Lake Carriers' Association, held in Cleveland. Let us first state the cause for the meeting, and give a few facts regarding the regulations. A few days ago, John C. Shaw, admiralty lawyer of Detroit, representing the Eddy fleet of steamers, stirred up Detroit newspapers to a claim that the regulations were entirely too stringent and should be modified so as to admit of greater speed in some parts of the river, and so as to bring about also some marked changes in rules relating to the passage of vessels in the river. It will be remembered that these regulations, which have been in force since the opening of navigation this spring, were prepared by a committee appointed at the last meeting of the Lake Carriers' Association, the committee consisting of Capt. W. S. Mack, Thomas Wilson, Geo. P. McKay, James Davidson, W. P. Henry and James Calbick. The first work of this committee was to secure the passage of an act of congress giving the secretary of the treasury the right to make and enforce rules for the navigation of St. Mary's river. Then a set of rules prepared by the Lake Carriers' committee were approved by the Ship Masters' Association and adopted by the treasury department, after a conference in Washington between representatives of the lake interests, the commissioner of navigation, supervising inspector-general of steam vessels and officers of the revenue cutter service, who were to enforce them. Capt. Davis of the revenue cutter Johnson was entrusted with the duty of enforcing the rules, and it was agreed that they should remain in force for one season, with the understanding that representatives of the same interests should meet again during the coming winter, and if

it was thought advisable modifications could be made. These facts were reported to a special meeting of vessel owners and officers of the Lake Carriers' Association, held in Cleveland, Monday. It was also explained that Mr. Shaw, who had been to the Sault, had succeeded in prompting Capt. Davis of the revenue cutter service to recommend to the treasury department the change which he (Mr. Shaw) desired in the regulations, and it was stated that one of the Eddy fleet of vessels represented by Mr. Shaw had been fined three times this season for violation of the rules. The statement that the Eddy steamer had been at fault in violating the rules probably had some effect on the action of the meeting, but it was agreed anyhow, by the vessel owners, that other fast steamers in the association outnumbered those of the Eddy fleet by hundreds, and as there was no formal complaint, excepting from this one source, decisive action was taken against any change in the regulations at present. The treasury department was asked by resolution to take no action on the recommendation of Capt. Davis. The committee to which was originally entrusted the work of preparing the regulations was empowered to go to Washington, if necessary, to prevent any change in the regulations. It will thus be seen that whatever may have been the disposition of the Lake Carriers' Association regarding a change in the rules, Mr. Shaw made a mistake in taking up this matter in the newspapers when the owners of vessels which he represented were members of the association.

So much for the circumstances that have prompted the association of vessel owners to declare against any change in these regulations. Now as to results that have followed the enforcement of the rules this season. As the number of fast steam vessels in the Lake Superior trade kept increasing in previous years owners declared against high speed in the Sault river and against vessels passing each other at a high rate of speed in narrow places. They even adopted rules which were known as rules of the Lake Carriers' Association. But these rules had not the force of law. Little attention was paid to them. Some captains took chances and rushed their vessels through the river regardless of the right of tows or other vessels that were not among the flyers. The orders of owners regarding speed were said to be insincere. But the owners, with few if any exceptions, were sincere, and they showed their sincerity when they secured the passage of an act of congress to regulate the navigation of the river. What has been the result during the present season? Not a tow line has been broken, not a single tow parted, and no collisions have occurred that can be attributed to causes which these rules were intended to cover. This is why it was decided at the Cleveland meeting that any proposition to change these rules should be handled with the greatest care, as it was already shown that the loss of time in the river under the rules was nothing as compared with the danger of loss of life and damage to vessel property that would attend reckless navigation in this crowded waterway.

PREPARATIONS are again being made by Secretary Keep and Treasurer McKay of the Lake Carriers' Association to secure more appropriations for aids to navigation. A list of new lights, fog signals, gas buoys, etc., some of them intended to replace private lights, has been prepared and the urgent need of all of them will be explained to members of congress who will have to do with these matters in the next session. Messrs. Keep and McKay were in Detroit, a few days ago, and they find that in nearly all cases the district officers of the light house service on the lakes have recommended the aids to navigation for which vessel owners are seeking appropriations.

VESSEL owners who have met Col. G. J. Lydecker of Detroit, have left him with the impression that his treatment of representatives of the shipping interests on the lakes will be of the same courteous kind that caused the late Gen. Poe to have a friend in everybody connected in any way with the vessel business. The lakes have been specially favored of late years with army engineer officers who were not above their positions in dealing with the common-place men of business. But not so much can be said of a few naval officers who have spent brief periods on the lakes.

GREAT speed is expected from the cruiser Brooklyn now nearing completion at the yard of the Cramps, Philadelphia, and which will be tried next month. Her contract calls for a speed of twenty knots, but there are some officials at the navy department who believe that she will make 21 1/2 knots.

Development of the Steamship in Fifty Years.

The fiftieth anniversary of the Scientific American, New York, is signalized by the publication of a very handsome 72-page special number, which consists of a review of the development of science and the industrial arts in the United States during the past fifty years. One of the leading articles is on the "Transatlantic Steamship." In tracing the various stages of the development of the transatlantic steamship, it is found that each decade was marked by some radical departure from the practice of the decade which preceded it. In the accompanying table it is attempted to mark this progress approximately, showing the most important changes in construction, the approximate rise in boiler pressure, and the approximate improvement in engine performance:

Decade.	Development in construction.	Approximate boiler pressure.	Approximate pounds of coal per horse p.w.r.
1845-55	Iron in place of wood.....	10 to 20	4.5 to 3.5
1855-65	Screw in place of paddle wheel	20 " 35	3.5 " 2.9
1865-75	Compound in place of simple engines....	35 " 60	2.9 " 2.2
1875-85	Steel in place of iron, and triple expansion engines	60 " 125	2.2 " 1.9
1885-95	Twin screws, quadruple expansion and forced draft	125 " 200	1.6 " 1.3

Suez Canal Traffic.

Numerous tables relating to the traffic of St. Mary's Falls canal since its opening have been published in these columns but similar data regarding the traffic of the Suez canal has extended only over a few years. We print herewith, however, a statement showing the number and tonnage of vessels passing through the Suez canal in each year since its opening. The table is from the last annual report of the British directors of the canal:

YEARLY RETURN OF TONNAGE PASSING THROUGH THE SUEZ CANAL FROM ITS OPENING UP TO AND INCLUDING 1895.

YEAR.	Number of vessels.	Gross tonnage	Net tonnage.
1869.....	10	10,557.61	6,576.00
1870.....	486	654,915.02	436,609.37
1871.....	765	1,142,200.46	761,467.05
1872.....	1,082	1,744,481.32	1,160,743.54
1873.....	1,173	2,085,072.61	1,367,767.82
1874.....	1,264	2,423,672.22	1,631,650.14
1875.....	1,494	2,940,708.45	2,009,984.09
1876.....	1,457	3,072,107.01	2,096,771.61
1877.....	1,663	3,418,949.72	2,355,447.69
1878.....	1,593	3,291,535.38	2,269,678.31
1879.....	1,477	3,236,942.32	2,263,332.19
1880.....	2,026	4,341,519.89	3,057,421.88
1881.....	2,727	5,794,491.19	4,136,779.77
1882.....	3,198	7,122,125.68	5,074,808.88
1883.....	3,307	8,051,307.30	5,775,861.79
1884.....	3,284	8,319,967.36	5,871,500.92
1885.....	3,624	8,985,411.80	6,335,752.98
1886.....	3,100	8,183,313.15	5,767,655.84
1887.....	3,137	8,430,043.20	5,903,024.09
1888.....	3,440	9,437,957.32	6,640,834.44
1889.....	3,425	9,605,745.48	6,783,187.12
1890.....	3,389	9,749,129.09	6,890,094.41
1891.....	4,207	12,217,986.41	8,698,777.36
1892.....	3,559	10,866,401.46	7,712,028.61
1893.....	3,341	10,753,798.15	7,659,068.10
1894.....	3,352	11,283,854.72	8,039,175.27
1895.....	3,434	11,833,637.33	8,448,383.01

Mr. Eugene T. Chamberlain, United States commissioner of navigation, says: "Your Blue Book of American Shipping must be invaluable to owners, masters and builders on the great lakes, and is of considerable service to all those concerned in matters treated of in the publication."

In a large number of cases the Blue Book of American Shipping has been sent on approval to ship owners, ship builders, marine engineers and others interested in shipping. In every case the price of the book, which is \$5.00, has been remitted immediately.

The next time you go to New York don't forget that the Nickel Plate road can save you money. Solid through trains with diners and sleepers daily.

200-July 31.

Cargo and Speed Records—Lake Freight Ships.

Iron ore—Coralia, Mutual Transportation Co. of Cleveland, 4,813 gross or 5,391 net tons, Escanaba to Ashtabula, draft of 16 feet 1½ inches; S. S. Curry, Hawgood & Avery Transit Co. of Cleveland, 4,569 tons gross or 5,117 net tons, Escanaba to South Chicago, draft of 18 feet. Lake Superior cargoes—Steamer Queen City, A. B. Wolvin of Duluth, 4,108 gross or 4,601 net tons, Duluth to South Chicago, draft of 14 feet 6 inches; steamer Sir Henry Bessemer, Bessemer Steamship Co. of Cleveland, 4,051 gross or 4,537 net tons, Ashland to Cleveland, draft of 14 feet 5 inches; schooner Aurania, John Corrigan of Cleveland, 4,074 gross or 4,563 net tons, Duluth to Ashtabula, draft of 14 feet 5 inches.

Grain—Steamer Queen City, A. B. Wolvin of Duluth, 202,000 bushels of corn, Chicago to Buffalo, 16 feet 6 inches draft; steel schooner Martha, Minnesota Steamship Co., 165,000 bushels of corn, South Chicago to Erie on 15 feet draft.

Coal—S. S. Curry, Hawgood & Avery Transit Co. of Cleveland, 4,535 net tons bituminous, Conneaut to Gladstone; Selwyn Eddy, Eddy Bros. of Bay City, Mich., 4,252 net tons anthracite, Buffalo to Milwaukee.

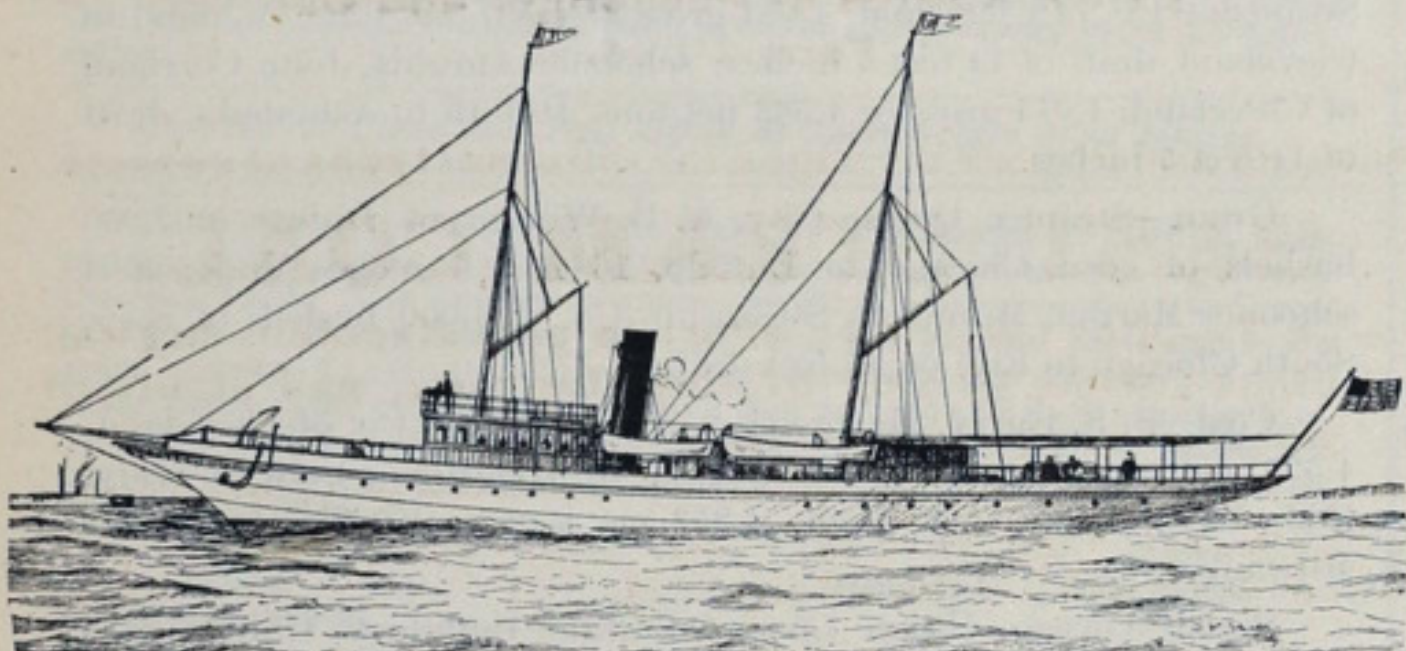
Speed—Owego, Union Line of Buffalo, Buffalo to Chicago, 889 miles, 45 hours and 16 minutes, 16.4 miles an hour; Centurion, Hopkins Steamship Co. of St. Clair, Mich., Buffalo to Duluth, 997 miles, 67 hours and 50 minutes, 14.7 miles an hour.

Reid and the Cayuga.

From interviews with Capt. James Reid, published in Chicago and Milwaukee, it is quite evident that he figured wide of the mark in the matter of lifting power required to raise the sunken steamer Cayuga, on which he is at work near the Straits. But it is generally said of Capt. Reid, although everybody wishes him success with the Cayuga, that he never yet attempted a wrecking job without spending the better part of a couple of seasons on it. His persistency is commendable, however, and there is little doubt that he will tackle the Cayuga again next spring if he is driven off by bad weather towards fall without accomplishing anything. One of the Milwaukee papers prints the following as a result of a recent visit which Reid made to that city after a trip on the Tuscarora, sistership of the Cayuga, which he was examining for the purpose of enabling him to carry on more intelligently his work on the Cayuga: "Capt. Reid said that impropitious weather had hindered the work materially, but everything is in such shape now that he hopes to be able to attempt a lift between the 1st and 10th of August. Three wire cables have been placed under the hull—one at the bow, one aft, and one amidship—leaving but one more cable to be placed, and that amidship, to complete the complement for the big scow pontoon. The cable aft is made fast to the hub of the wheel. The ends have been attached to two of the pontoons, and the latter sunk to the bottom for a preliminary test of their condition. The pontoons to be used at the bow are still at Harbor Springs and will not be towed out to the wreck until the fourth cable has been placed in position and everything else is in readiness for the proposed lift. Capt. Reid said that an attempt to inflate the compartment from which the oats were removed had proved a failure, and he assigns as a reason that the steamer's main deck may have been sprung at the point by the collision with the Hurd. However, the imperfect condition of this compartment has in no wise dampened his ardor or shaken his confidence of ultimate success. The captain pins great faith to the water bottom of the Cayuga, which he considers both water and air tight. As the steamer lies upon her side, there is good reason to believe that the inflation of this water bottom will turn the hull bottom upward. Nobody is better aware of this than Capt. Reid, it seems, and he says he would rather lift it in that way than in her present shape, because the inflation will be rendered more secure and it will be as easy to right it with a full turn as with a half turn. Capt. Reid has made a thorough study of the boiler connections of the Tuscarora, in order that he may be able to close all possible openings in the Cayuga's boilers and inflate them. He does not want to lift the wreck from the bottom more than 8 or 10 feet at first, as that will be sufficient to enable him to tow it to the shelter of Little Traverse bay. In explanation of the fact that one cable is attached to each set of the cylindrical pontoons, it should be stated that the pontoons are provided with bridles for the purpose of equalizing the strain. The large scow pontoon has a pair of bridles, one for each of the two cables."

Yachts Built at Roach's Yard.

One of the most successful pleasure craft built this year is the new yacht *Parthenia*, recently finished at Roach's Delaware River Iron Shipbuilding and Engine Works, Chester, Pa., for Stephen W. Roach, the youngest son of the great ship builder. The *Parthenia* is now attached to the Larchmont yacht club and has attracted much attention about New York. She is a schooner rigged steel vessel of 115 feet 9 inches on the water-line, with a very great over-hang, her



lines being unusually graceful, and the extending bow and stern bringing her length over all up to 142 feet. Her breadth of beam is 18 feet, and the depth of hold 9 feet, with a depth in the water of about 6 feet 6 inches.

The *Parthenia* is driven by a triple expansion engine of the most approved type, with cylinders 9, 16 and 25 inches diameter by 14 inches stroke of piston. Steam is supplied by two Almy water tube boilers, with a grate surface of 32 square feet. Her wheel, which is three-bladed, is 6 feet 6 inches in diameter, with a pitch of 7 feet. The gross tonnage of the *Parthenia* is 130.91, and net 89.02. Deck houses and exposed woodwork is all of polished mahogany. There are seven staterooms and a handsome saloon, finished in white and old gold. This little steamer maintains a speed of eighteen miles an hour with perfect ease.

The *Aileen* for Richard Stevens, the millionaire vessel owner of

Hoboken, N. J., and the *Oneonta*, for F. C. Dinninny of New York, are other yachts recently finished at the Chester yard. The *Oneonta*, in maintaining a speed of twenty-two miles an hour, four miles in excess of the contract stipulations, is one of the most notable triumphs of the year. The *Aileen* was built for pleasure and comfort, but has also made a creditable showing of speed.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store in regular elevators at the principle points of accumulation on the lakes on July 25, 1896:

	Wheat, bushels.	Corn, bushels.
Chicago.....	13,874,000	4,979,000
Duluth.....	7,018,000	6,000
Milwaukee.....	393,000	2,000
Detroit.....	170,000	1,000
Toledo.....	563,000	37,000
Buffalo.....	1,494,000	144,000
Total.....	23,512,000	5,169,000

As compared with a week ago, the above figures show at the several points named an increase of 730,000 bushels of wheat, and a decrease of 421,000 bushels of corn.

Thirty-six half-tone engravings, 6 by 8 inches, well printed, and all made up from good photographs of vessels of the United States navy, are contained in a neat pamphlet, just issued by the International Engraving and Illustrating Co. of Philadelphia.

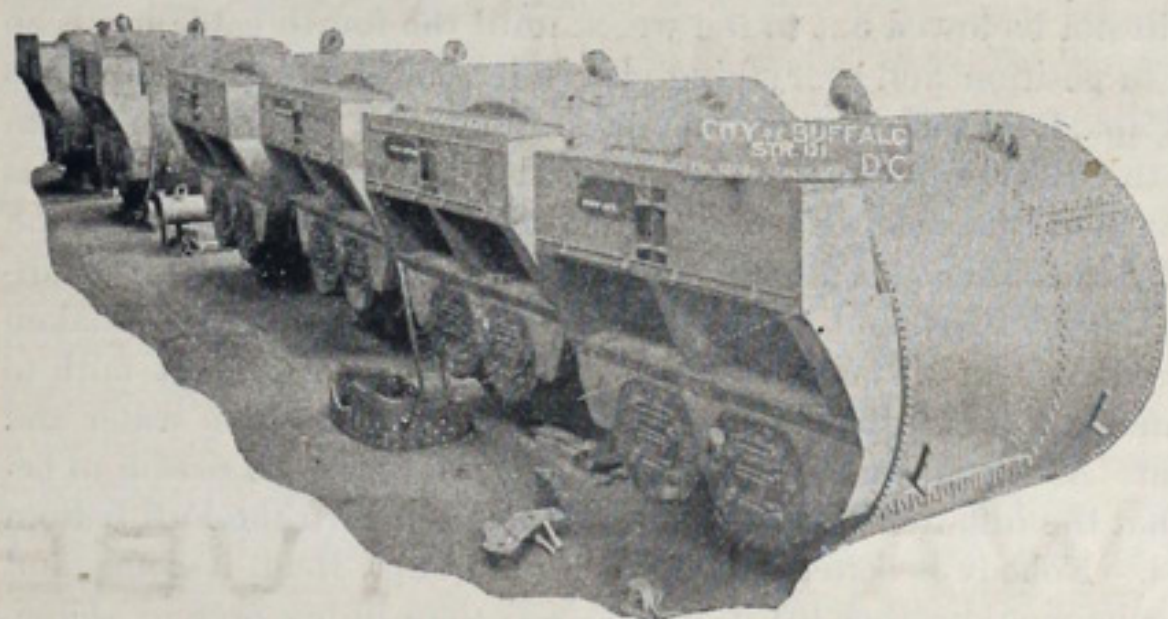
Letters bearing the following names await claimants at the marine post office, Detroit: George Burke, H. W. Candler, Capt. Wm. Christee, F. Germain, Jessie Jossepp, William Jimmerson, James Johnston, William Jobbitt, Mack MacDonald.

The I. O. O. F. excursion rates to Buffalo via Nickel Plate road will be a fare and a third. Tickets are on sale, Aug. 4th, 5th and 6th. 203-July 31.

One fare rates to Omaha via the Nickel Plate road Aug. 17th and 18th, account the Y. P. C. U. of the U. P. church. 204-July 31.

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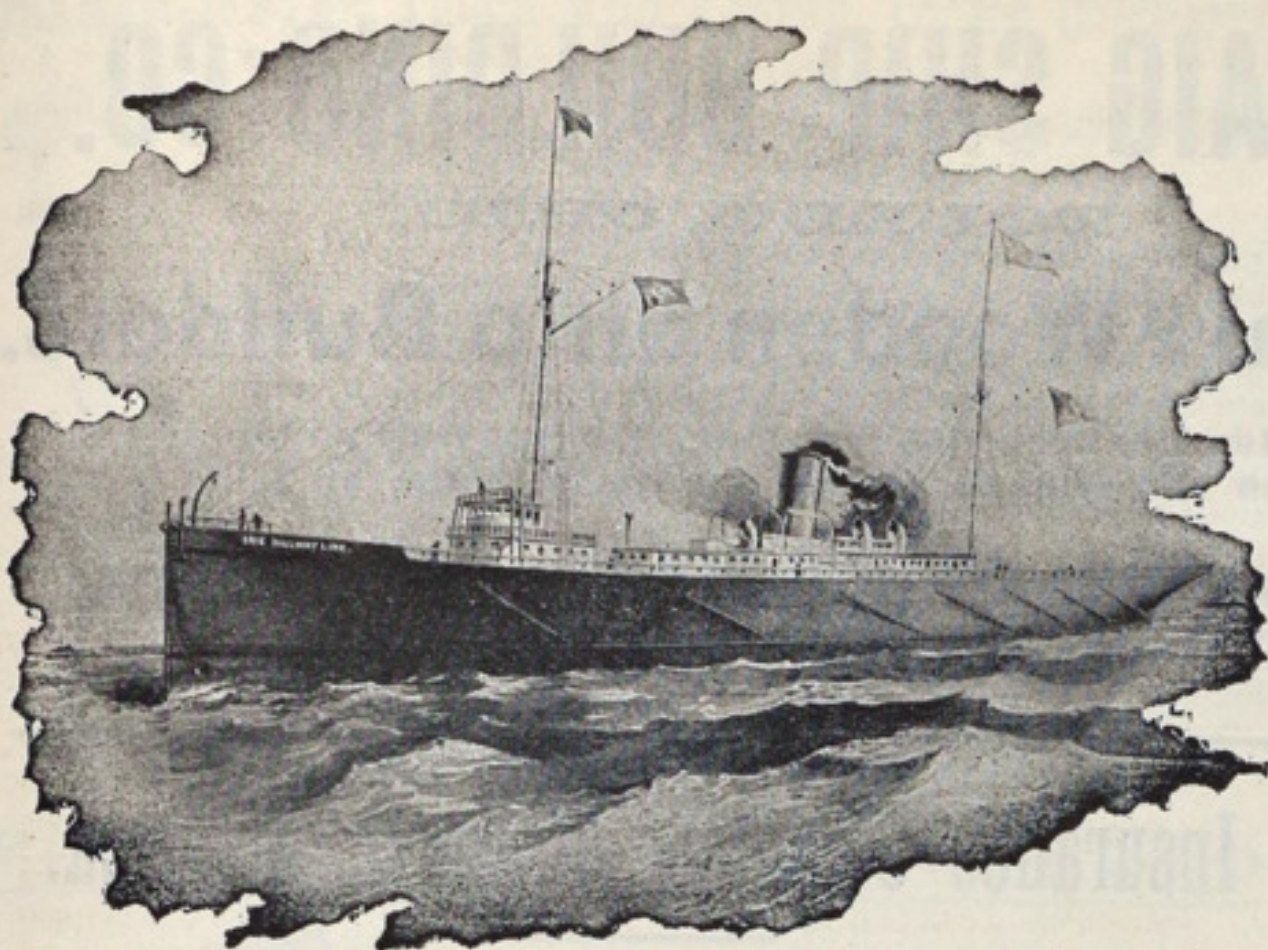
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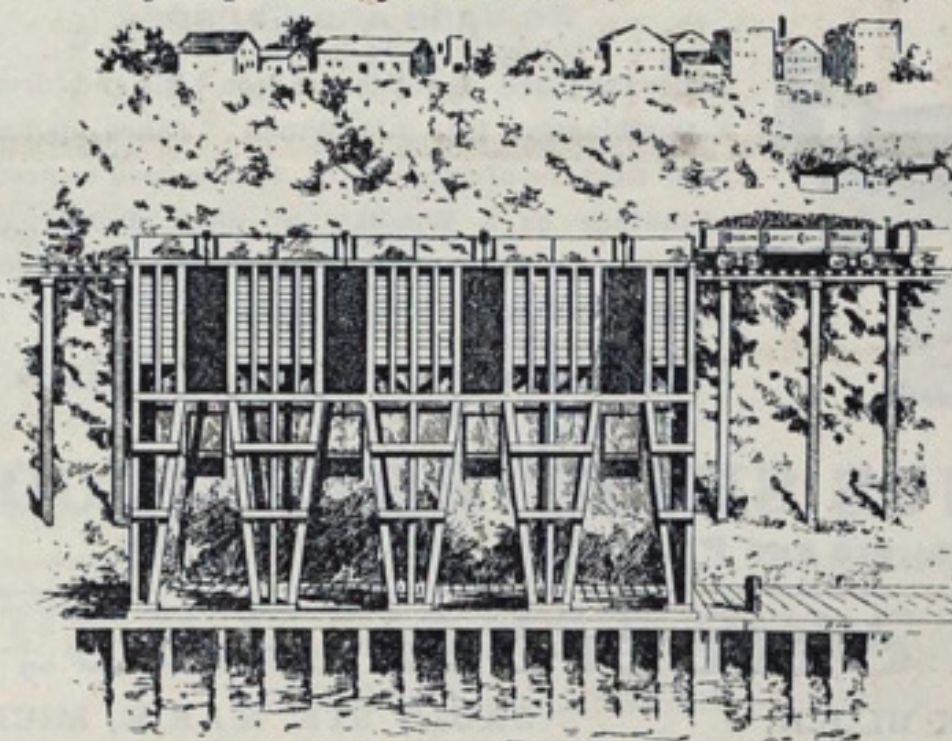
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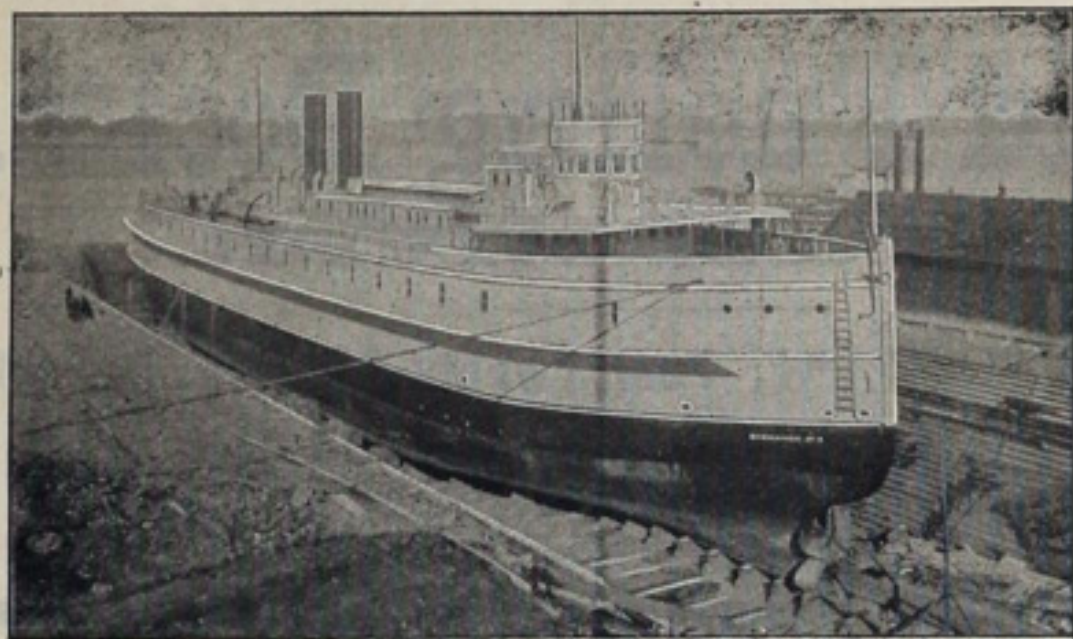
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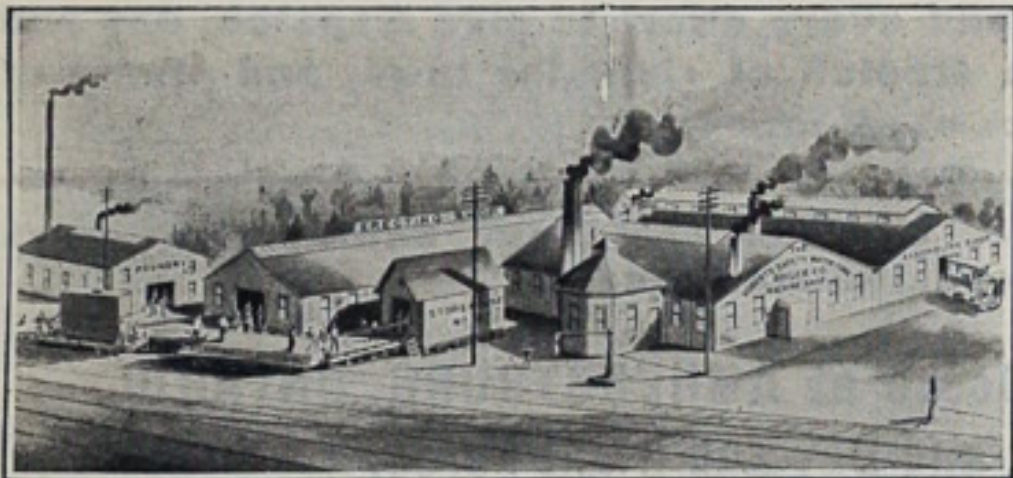
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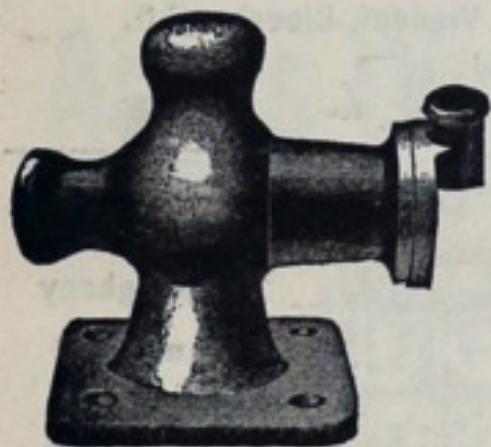
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PROPOSALS FOR IMPROVING ERIE HARBOR, Pa., U. S. Engineer office, D. S. Morgan Building, Buffalo, N. Y., June 19, 1896. Sealed proposals for dredging, and furnishing and placing rip-rap stone at Erie Harbor, Pa., will be received here until 11 o'clock A. M., July 20, 1896, and then publicly opened. Information furnished on application. T. W. SYMONS, Major, Engrs. July 18.

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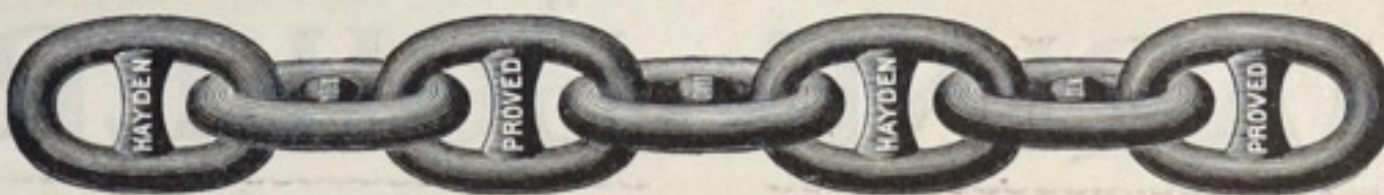
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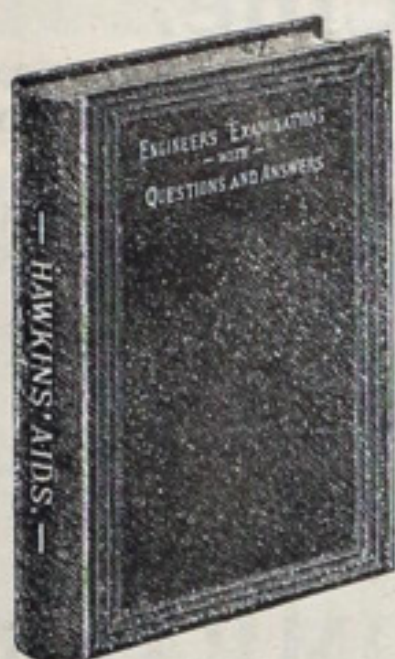
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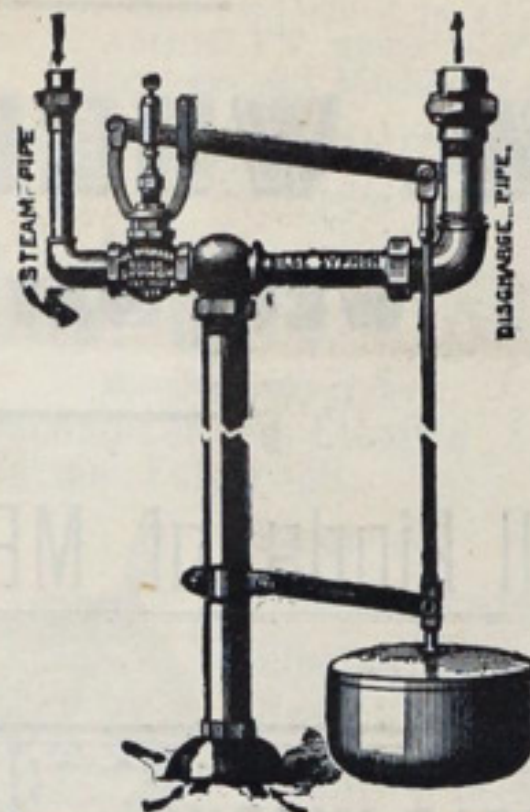
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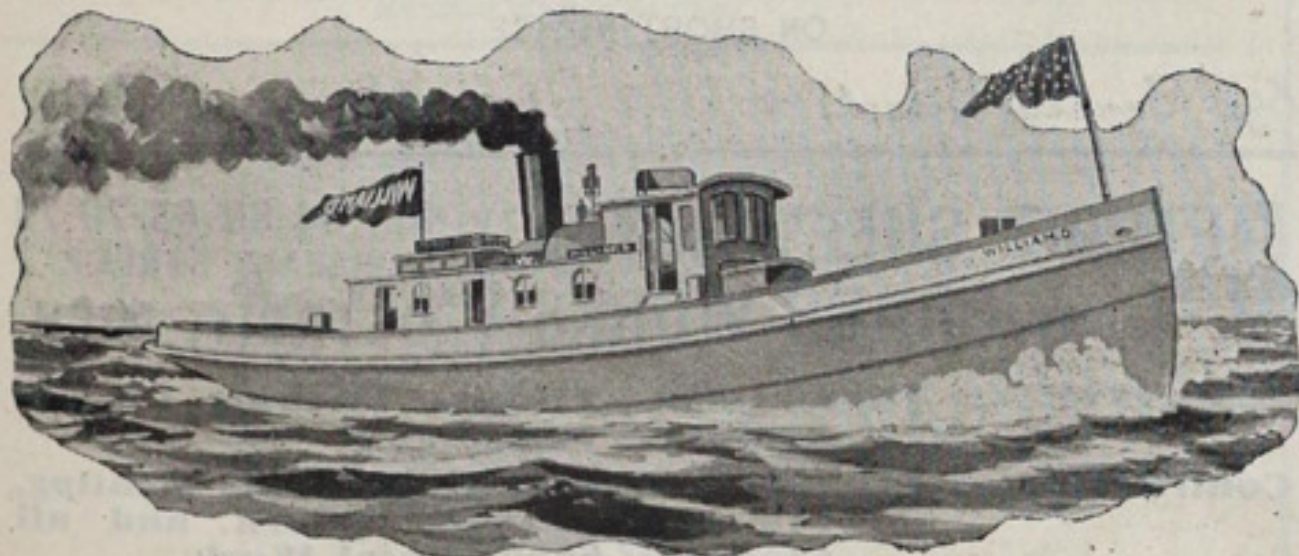
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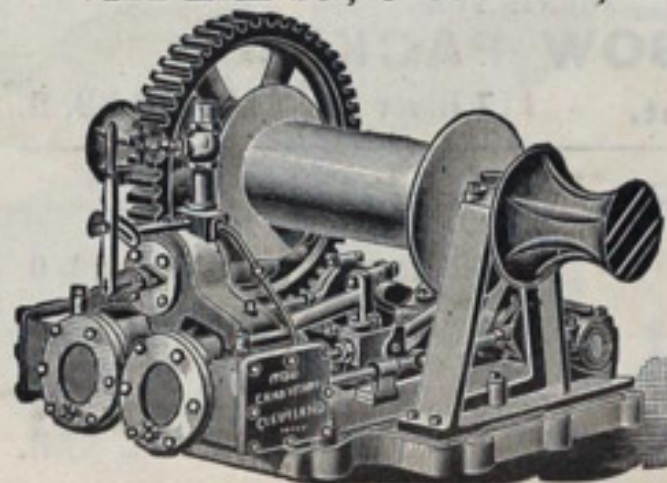
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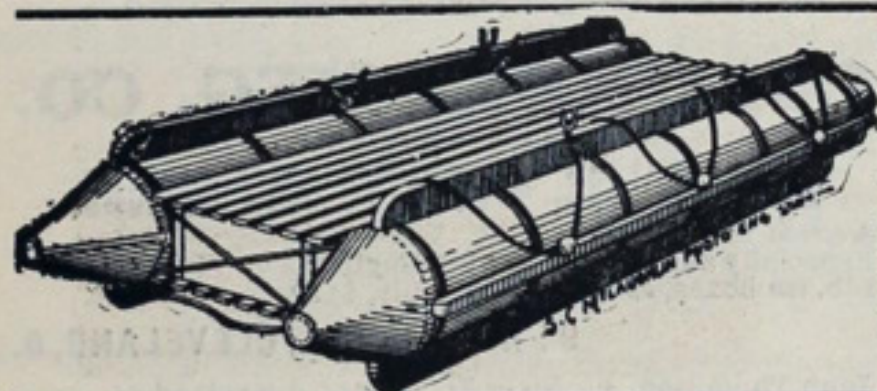
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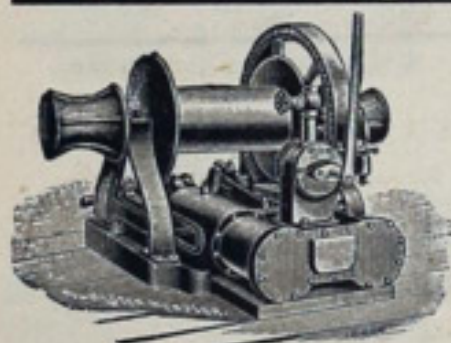
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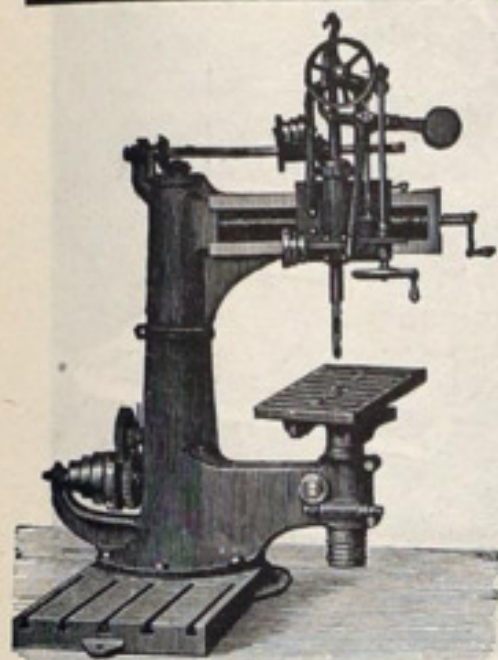
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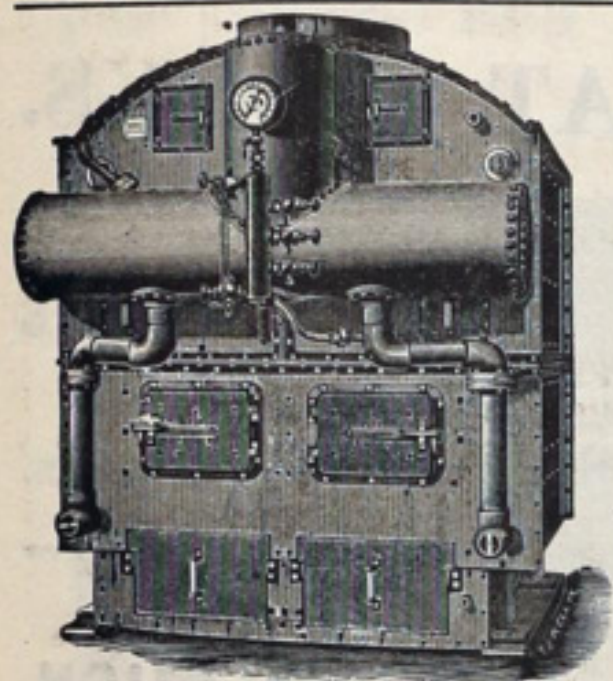
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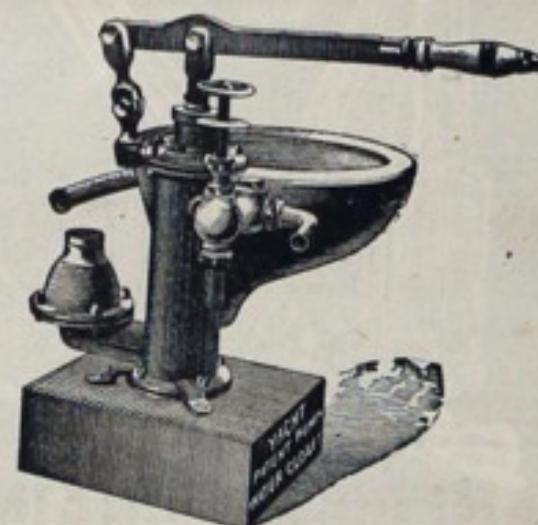


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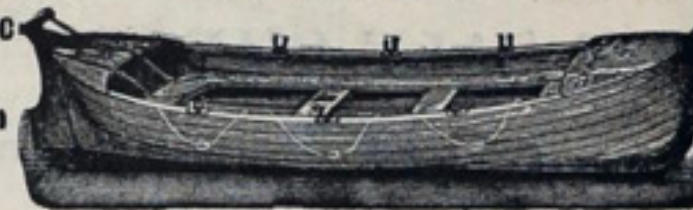
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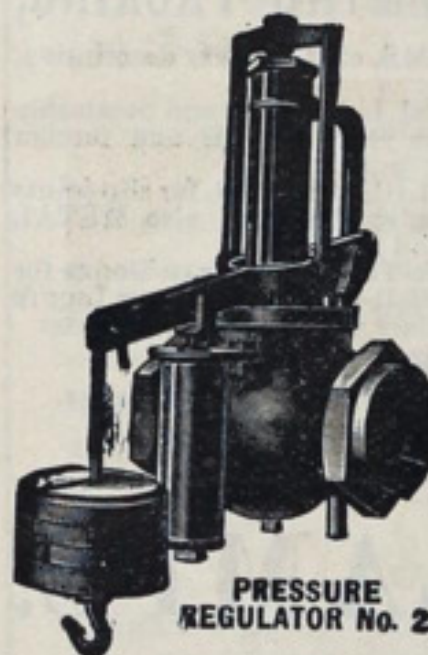
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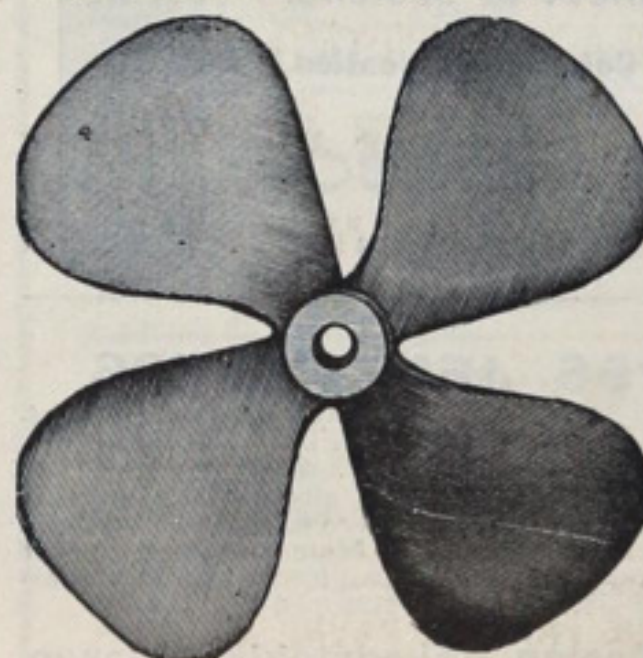
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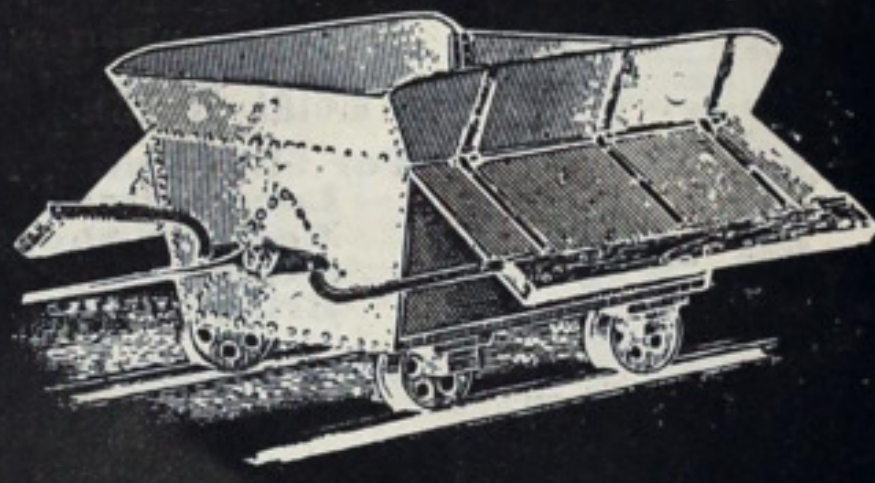
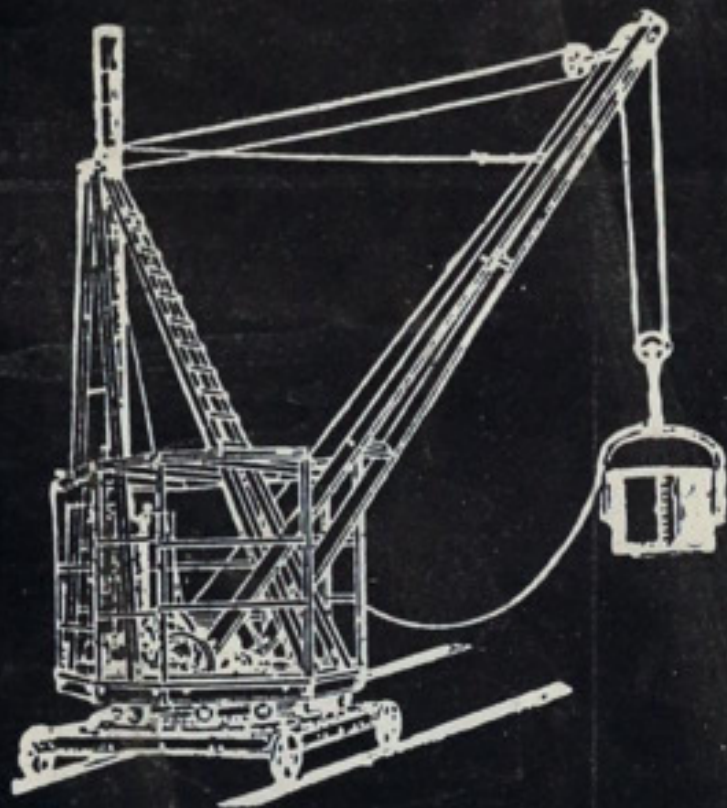
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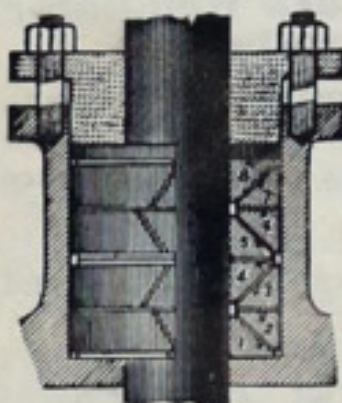
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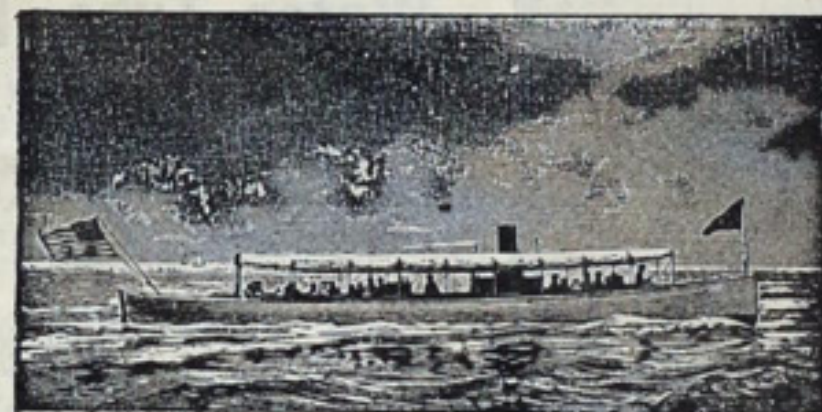
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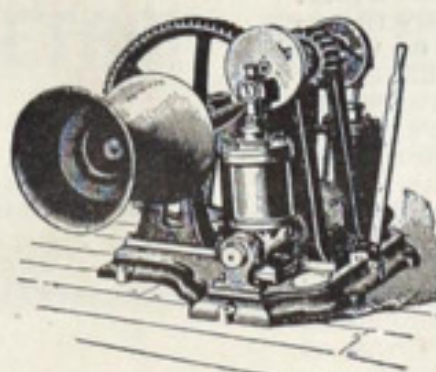
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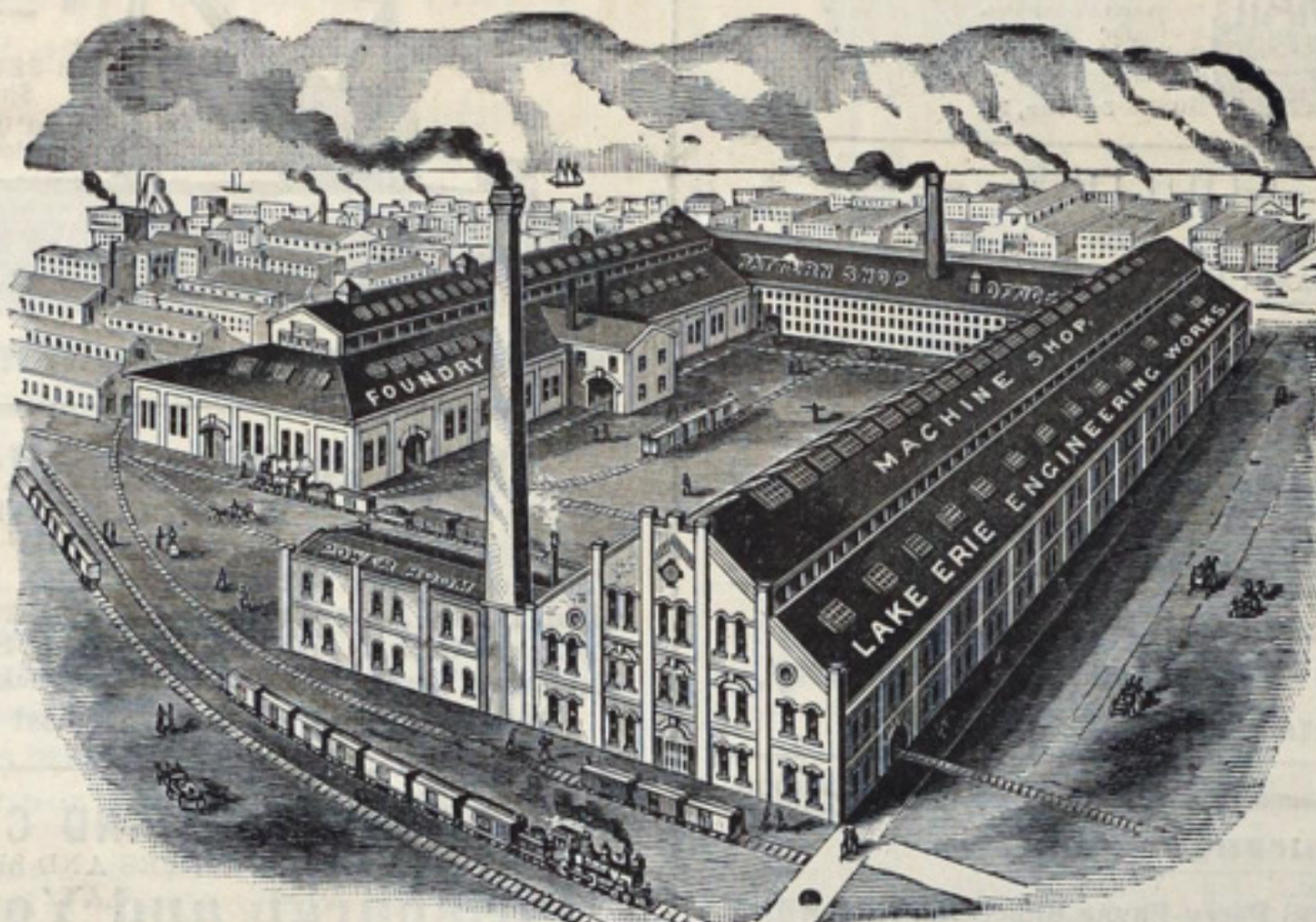
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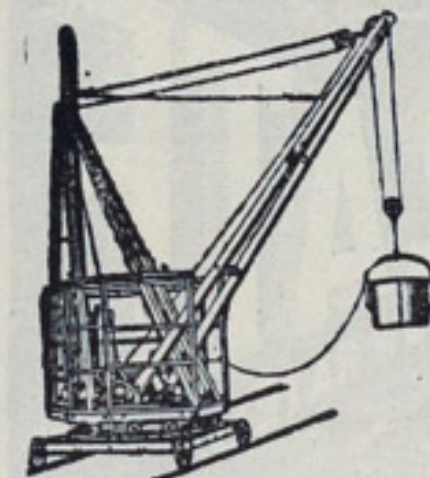
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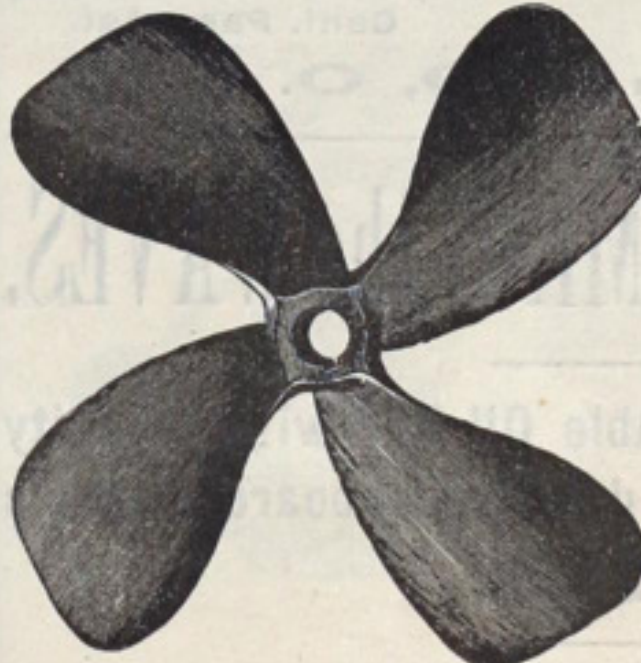
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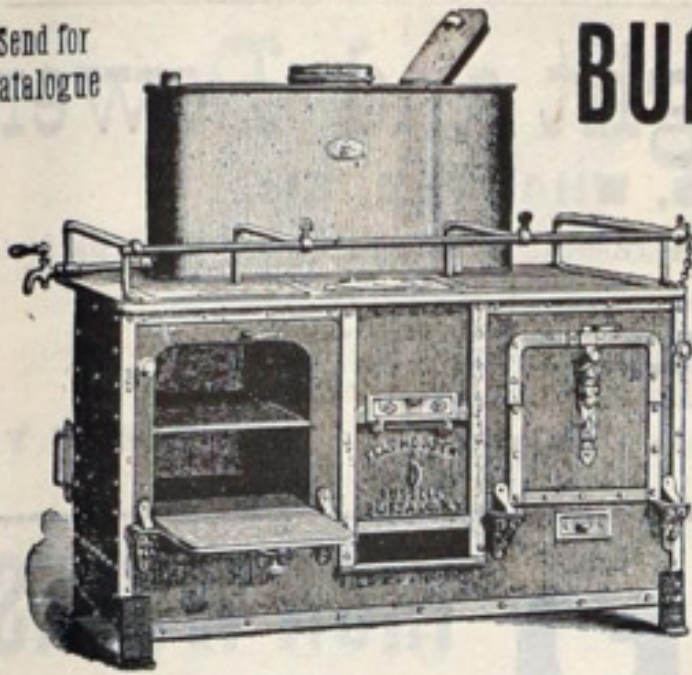
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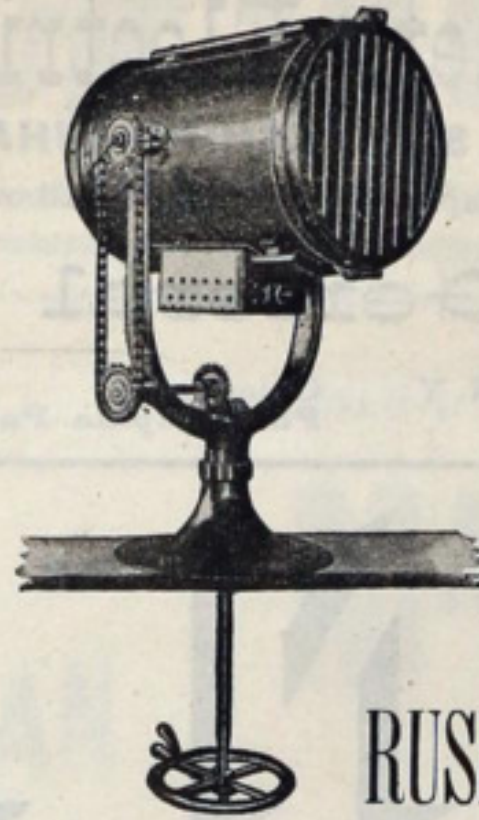
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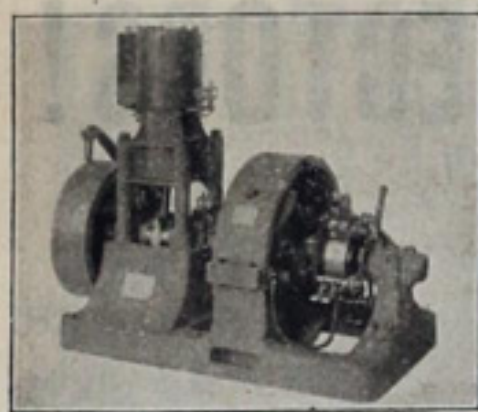
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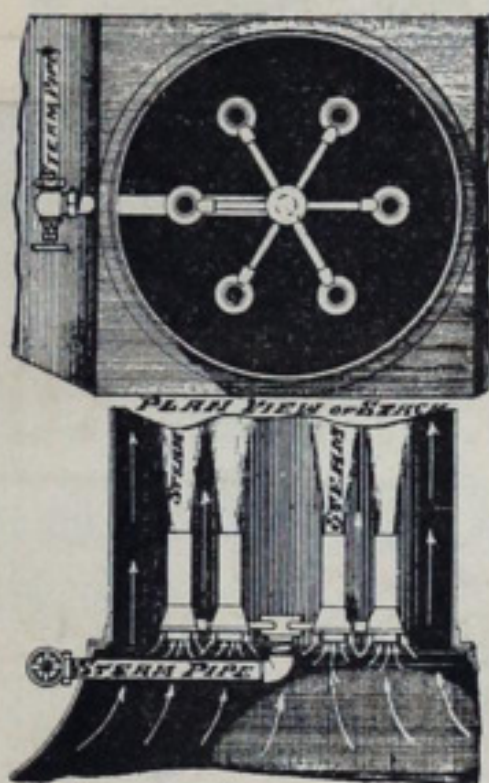
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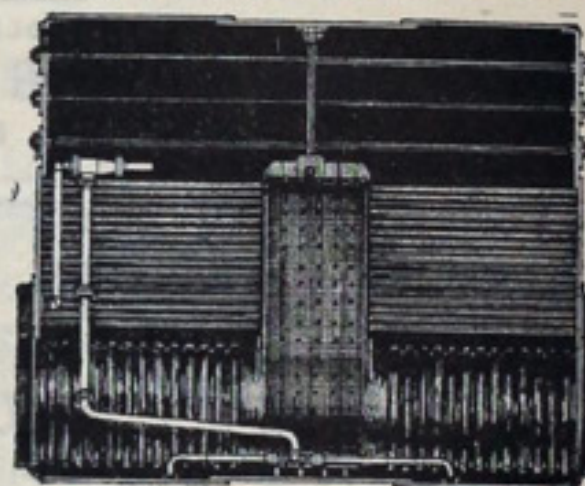
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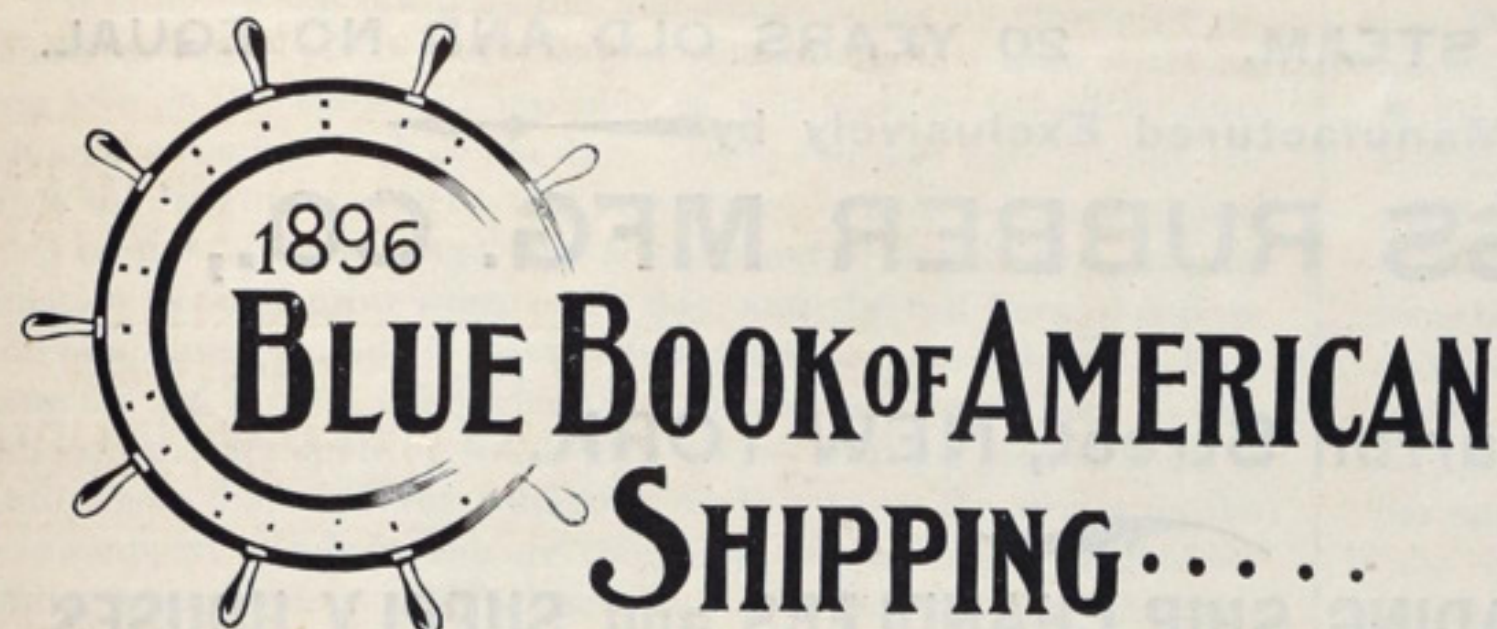
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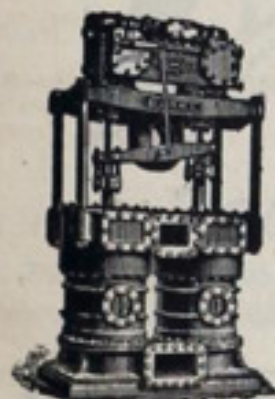
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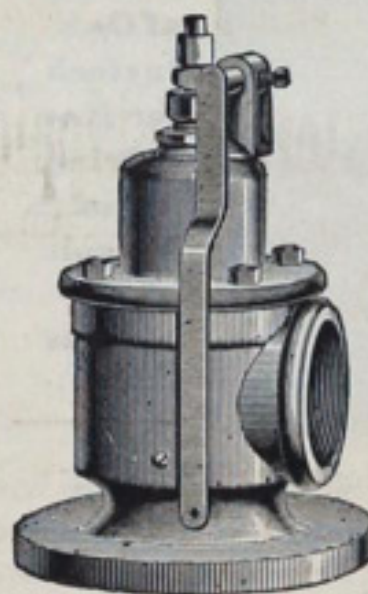
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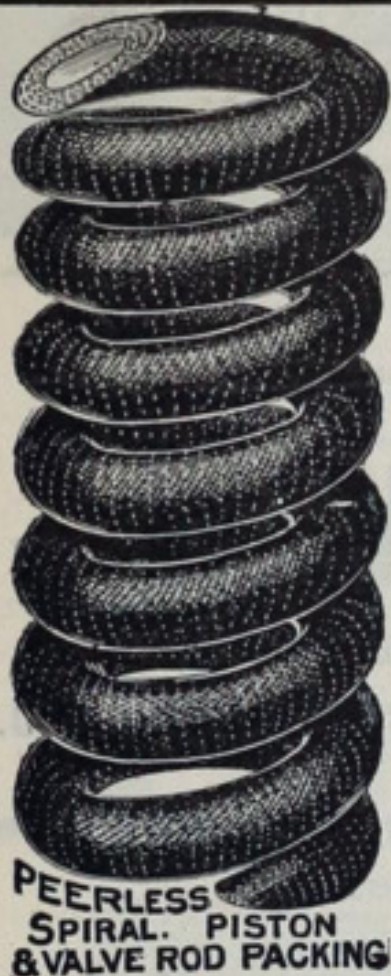
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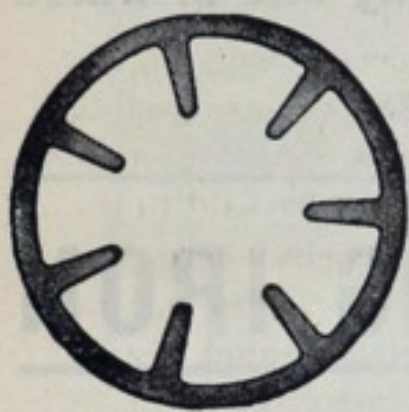
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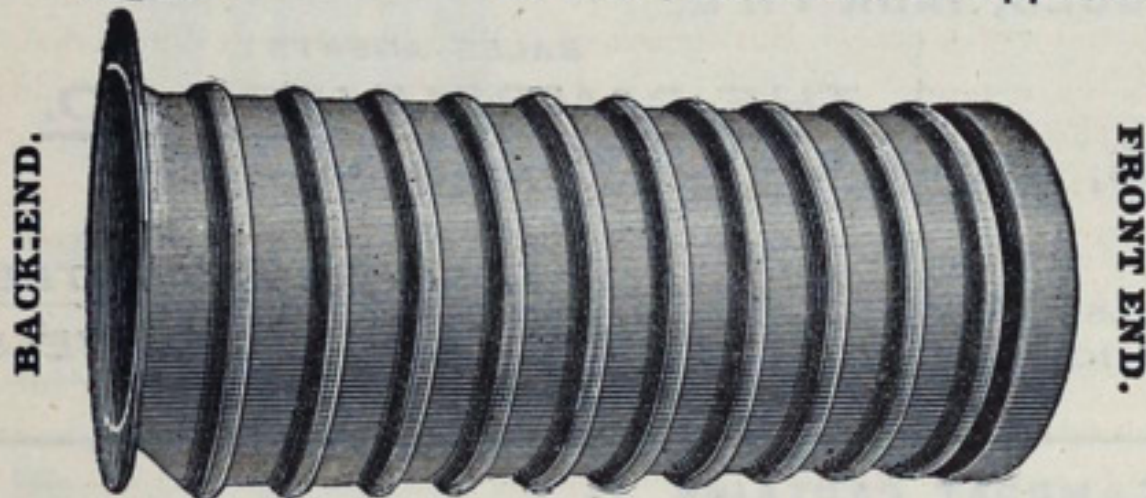
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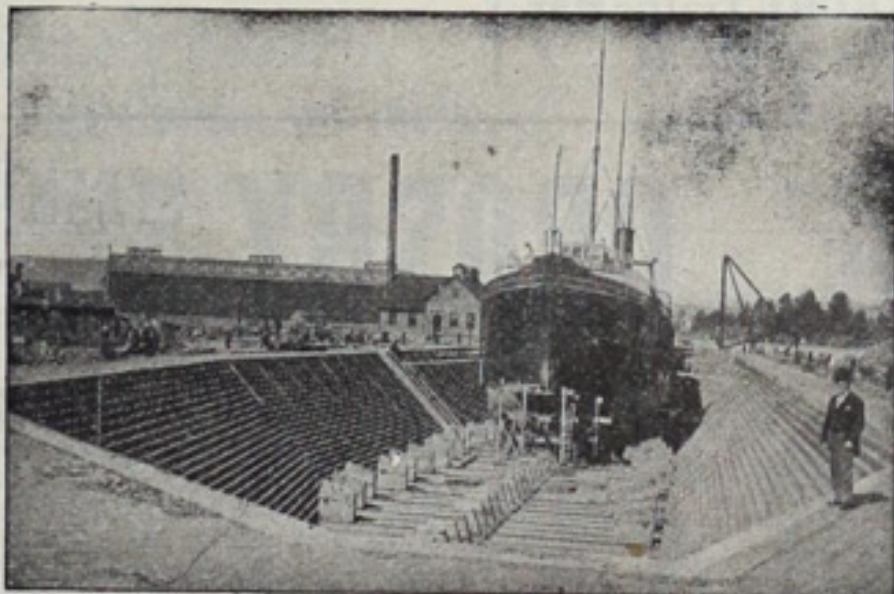
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Breadth, Bottom.....52 "	Depth over Sills.....18 "

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